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ABSTRACT

This monograph presents 23 papers presented at a 1995 Oregon conference which focused on students in trouble due to disabilities or context problems. Paper titles and authors are: "Identifying Students Who Have Learning Disabilities" (Barbara D. Bateman and David J. Chard); "ADHD: A Teachers' Guide" (Rosalyn A. Templeton); "Knowledge about the Brain for Parents, Students, and Teachers: The Keys to Removing the Invisible Roadblocks to Learning and High Self-Esteem for All Students" (Claude R. Beamish); "Juvenile Delinquency: Is Crime Actually on the Rise?" (Lance Schnacker and George Sugai); "Violent Students with Disabilities and School Responsibilities" (Young-Yon Lee); "Character Education Revisited: Historical and Contemporary Perspectives in the State of Oregon" (Randall L. De Pry and George Sugai); "Put the Professional Portfolio into Focus for the Individual and Special Education Applications" (Dean N. Osterman and David A. Krug); "Observing Teacher Behavior: An Efficient Empirical Method of Generating Hypotheses about Student Problem Behavior in General Education Settings" (Part I of III) (Rollen C. Fowler); "The Use of Functional Assessment in Research on the Effects of Attention from a Peer Tutor" (Part II of III) (Tary Tobin); "Professional Reading Patterns and Preferences: Bridging the Gap between Research and Practice" (Part III of III) (Randall L. De Pry); "School-Wide Discipline: Procedures for Managing Common Areas" (Ron Nelson and Geoff Colvin); "The Making of a School Community: Organizational Structure, Processes, and Goals" (Diana Oxley); "Development of Transition Programs for Adolescents with Serious Emotional Disturbances" (Julia Bulen and Michael Bullis); "An Inside Look at School Reform: What We Have Learned about Assessing Student Learning in a Nongraded Primary School" (Tracey E. Hall and Scott Baker); "Developing a School-Wide Discipline Plan: Addressing All Students, All Settings and All Staff" (Geoff Colvin et al.); "Project LITERACY-HI: Hypermedia for Readers with Hearing Impairments" (Mark

Horney et al.); "Establishing Classroom Routines" (Geoff Colvin and Mike Lazar); "Social Skills Training for Youth with Behavior Disorders" (Lance Schnacker); "The Effects of Self-Evaluation, Self-Observation, and Self-Observation plus Self-Recording on the Occurrence of Disruptive Behaviors in Classroom: Extension Study" (Myounghee Yang Kim and George Sugai); "Steps and Practical Guidelines for Developing and Implementing Self-Management Programs for Children's Social Behavior on the Playgrounds" (Hwangyong Kim); "A Comparison of the Effects of Direct Instruction in Reasoning with Constructivism on Deductive Reasoning" (Bonnie Grossen et al.); "Argumentative Writing: Making Something Complex Accessible" (David Landsom); and "Understanding Student Understanding" (Dewayne E. Joehnk and Gerald Tindal). (Individual papers contain references.) (DB)

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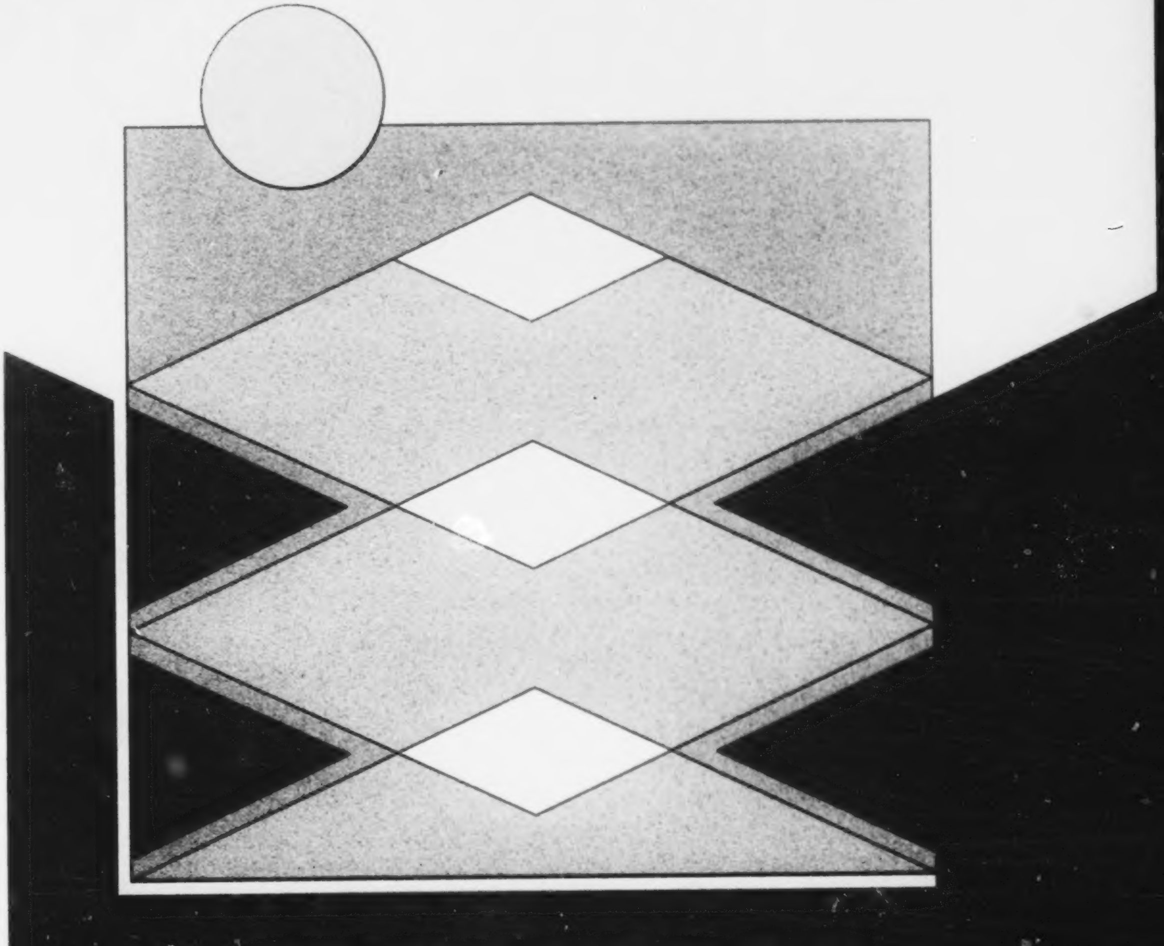
The Oregon Conference



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Edited by

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Foreword

This year's monograph represents the 7th year that authors have assembled a variety of perspectives, findings, propositions, and conclusions from their research and practice in the field. As in the past, the topics are diverse and not easily organized into clear categories. Indeed, the focus of the conference is to present a broad survey of the field in the mid-90's. As noted in these articles and in the conference presentations, the concerns and issues raised reflect expansions on today's developments and explorations into new areas where little precedence exists. These expansions and explorations present exciting educational challenges for educators and reinforce the need for and importance of community solutions.

We continue to cover topics that have been present for years. The development of sound instructional programs that rely on clear communication is well-represented in the conference and monograph. For example, authors write about designing instructional programs for writing, reasoning, social skills, classroom routines, functional assessment, and self-management. Certainly these topics are relevant and provide a research-based perspective that continues to be needed by teachers in the classroom and researchers in the educational community.

Yet, consideration of instructional programs has been expanded and other topics now appear that were less prevalent when we first published this monograph. For example, today's educators are discovering that they must view educational programs from an organizational perspective. Increasingly, teachers need to consider their roles and responsibilities within the larger organization, and researchers need to study students from this systems perspective. The articles about school communities, school-wide discipline, school reform, and transition programs offer an expanded view of education and push our focus beyond the immediate context of the classroom. Authors and presenters from multiple perspectives (e.g., state departments of education, community providers, district administrators) are represented in this monograph.

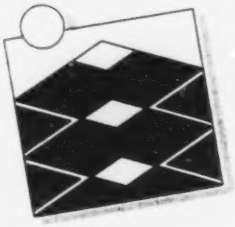
Finally, a focal point for the conference and monograph is "students in trouble." Whether viewed as a context problem or a disability, several authors extend our understand of current issues in serving our nation's youth. The context perspectives ask us to consider juvenile delinquency, school violence, and character education. The disability perspective focuses us on issues relating to learning disabilities, hyperactivity, and brain dysfunctions. In every case, the authors ask us to consider etiology and education. In summary, the monograph helps us take stock of our current views and provides a cogent reminder that even with our practical and empirical gains, we still have many educational challenges that require a community solution.

Dedication

Each year, we dedicate the monograph to a person of distinction. Last year, we highlighted the achievements of Knute Espeseth, noting his many years of distinct service as a member of the special education faculty at the University of Oregon. This year, another faculty member from the department deserves such recognition. Dr. Barbara Bateman also has been a long-time member of the special education area faculty and a prolific thinker, writer, and mentor. Many are quick to describe her as a founder of the field and one of its most famous pioneers. Dr. Bateman has helped define many of the educational challenges and certainly helped craft many of their solutions that face special educators today. We dedicate this monograph to Dr. Barbara Bateman and honor her by placing her article, written with David Chard, in the lead position. Barbara is a consummate professional who is undaunted by controversy…and is usually right.

GS
JT

Section I



WRITINGS ON DISABILITIES

Identifying Students Who Have Learning Disabilities

Barbara D. Bateman
David J. Chard
University of Oregon

IDENTIFICATION OF STUDENTS WITH LEARNING DISABILITIES (LD) FOR SPECIAL EDUCATION services has been problematic since specific learning disability was included in the P.L. 94-142 regulations as a category of eligibility for special education services in 1977. Very early in the history of remedial education, attempts were made to quantify a child's achievement relative to the child's potential for achievement in hopes of establishing a method of formal assessment of "academic retardation" (Hallahan & Kauffman, 1976). A typical formula was that of Myklebust (1968):

$$\frac{\text{Mental Age} + \text{Life Age} + \text{Grade Age}}{3} = \text{Expectancy Age}$$

Mental age was derived from an intelligence test, life age was an indication of the child's physiological maturity based on chronological age, and grade age indicated the child's school experience. Myklebust's assumption was that the ratio of the child's actual achievement to expectancy should be at or above 90. Anything less than 90 was indicative of a learning disability (Hallahan & Kauffman, 1976). Myklebust's formula was just one step along the path to special education's current infatuation with formal quantification of learning disabilities. The use of formulas for identifying students with LD has not been unanimously accepted, however. While some state departments of education are actively promoting particular formulas for identifying a severe discrepancy, many leaders in the field of LD are attempting to remove the "severe discrepancy" clause from the federal definition of LD (Hammill, Patton, Cessna, & Bryant, 1994). In this paper we present the LD identification procedures required by the Individuals with Disabilities Education Act (IDEA), examine why formulas are not appropriate for determining severe discrepancy, and recommend a method of LD identification that is both professionally sound and legally compliant with IDEA regulations.

Legal Requirements for LD Identification

IDEA regulations define a learning disability as:

> A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not apply to children who have learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.
> (34 CFR 300.7[a][10])

The criteria which must be met for a child to be found eligible are also spelled out in the IDEA regulations. A properly constituted, multidisciplinary team (MDT) must find:

> (a) That a child has a severe discrepancy between achievement and intellectual ability in one or more of the following areas—
> (i) Oral expression;
> (ii) Listening comprehension;
> (iii) Written expression;
> (iv) Basic reading skill;
> (v) Reading comprehension;
> (vi) Mathematics calculation; or
> (vii) Mathematics reasoning.
> (b) The team may not identify a child as having a specific learning disability if the severe discrepancy between ability and achievement is primarily the result of—
> (1) A visual, hearing, or motor impairment;
> (2) Mental retardation;
> (3) Emotional disturbance; or
> (4) Environmental, cultural or economic disadvantage (34 CFR 300.541).

Furthermore, the team must determine that because of the specific learning disability the child needs special education and related services (34 CFR 300.7[a][1]).

These determinations must be based on assessment "in all areas related to the suspected disability, including, if appropriate, health, vision, hearing, social and emotional status, general intelligence, academic performance, communicative status, and motor abilities" (34 CFR 300.532[f]).

Furthermore, the comprehensive assessment must be made by a team comprised of at least four persons including a "specialist with knowledge in the area of the suspected disability" (LD) (34 CFR 300.352[e]) and also include:

> (a)(1) The child's regular teacher; or (2) If the child does not have a regular teacher, a regular classroom teacher qualified to teach a child of his or her age; or (3) For a child of less than school age, an individual qualified by the SEA to teach a child of his or her age; and (b) At least one person qualified to conduct individual diagnostic examinations of children, such as a school psychologist, speech-language pathologist, or remedial reading teacher (34 CFR 300.540).

In summary, to determine LD eligibility, a multidisciplinary evaluation team must find that:

(1) A severe discrepancy exists between ability and achievement in reading decoding, reading comprehension, math facts, math applications, written or oral expression, or listening comprehension.

(2) The discrepancy, if one exists, is not primarily due to mental retardation, emotional disturbance, sensory or motor impairment, or cultural, economic or educational disadvantage; and therefore is presumed to be due to LD.

(3) The student needs special education because of the LD.

With this three-step eligibility process, a number of scenarios are possible. For example, a child with a severe discrepancy may be learning disabled but not need special education because the general education curriculum is sufficient. Likewise, it is possible that a child may have a severe discrepancy in one of the listed academic areas, but the team may find that the discrepancy is due to environmental disadvantage, and thus the child is not eligible for special education. Or a team may determine that a child has a severe discrepancy which is caused by a learning disability and requires special education (i.e., specially designed instruction such as a specialized math remediation program).

Problems in LD Identification

As is well known, the LD identification process is not always executed perfectly. Too many MDTs simply employ a formula to compare two scores on standardized tests — usually a Woodcock-Johnson with a WISC sometimes tossed in — and pronounce the student LD or not LD. This formula abuse problem will be discussed later.

The next step, if a severe discrepancy exists, is to determine its cause. While some MDT teams are comfortable excluding discrepancies due to mental retardation, emotional disturbance, or sensory or motor impairment, few are comfortable with the relationships among learning problems and cultural, economic, or educational disadvantage. Fewer yet ever directly ask whether a learning disability is the cause of the discrepancy.

Finally, the MDT team must also determine whether the child needs special education. All too often, the MDT team never reaches this third step. Even when an MDT team does consider this third element, it is too often the case that the team members lack sufficient knowledge of LD to determine whether the child truly needs specially designed instruction.

Sometimes, it is this lack of specialized, current knowledge about the rapidly exploding field of learning disabilities that drives MDTs to rely upon a formula. More will be said about this reliance upon formulas after we examine the problems inherent in any use of formulas to define severe discrepancy.

Why Discrepancy Formulas are Inappropriate

The federal government recognized very early on that the use of formulas for identifying students with learning disabilities was not appropriate. In 1980, Garry McDaniels, Director of the Bureau of Education for the Handicapped, concluded that

> In establishing the existence of a severe discrepancy, the team has to make a judgment about the importance of any difference that exists between expected and actual achievement. Making this judgment requires more than just the use of a formula to establish a discrepancy score....the use of a formula with a numerical eligibility cut-off criterion could have a serious negative effect on the identification of some handicapped children (O'Grady, 1980).

McDaniel's comments reflected the official stance of the U.S. Office of Education (USOE). This position was established much earlier, when a formula had been included in the proposed P.L. 94-142 (EHA) regulations. In 1977, the U.S. Office of Education (USOE) rejected the inclusion of any formula in the LD identification process and summarized its reasons in the Federal Register:

> Many commenters objected to the formula proposed for establishing a severe discrepancy between ability and achievement. Their concerns fell primarily into four areas:
> (1) The inappropriateness of attempting to reduce the behavior of children to numbers;
> (2) The psychometric and statistical inadequacy of the procedure;
> (3) The fear that use of the formula might easily lend itself to inappropriate use to the detriment of handicapped children;
> (4) The inappropriateness of using a single formula for children of all ages, particularly pre-school children.

> Response
>
> Because of the above and other concerns, the Office of Education conducted a study to determine the effectiveness of the formula. While the findings showed that the formula has a certain degree of operational validity, they also identified pronounced technical limitations in its application, including all four concerns listed above. Given the type and number of technical limitations, it has been determined that the formula should not be included in the final regulations.
>
> Comment
>
> A few commenters recommended alternative formulae for use in determining the existence of a severe discrepancy between ability and achievement.
>
> Response
>
> None of these formulae were adopted. Each was found to have the same types of technical limitations as the formula in the proposed rules (Regulations for Evaluating Specific Learning Disabilities, 1977, p. 65084).

In addition to the concerns raised in 1977 that persuaded the USOE to reject use of formulas, there are a number of other problems. One of these is the difficulty in using a formula to explain to parents why their child is or is not eligible for special education services. The problem of communication with parents is one reason the Learning Disabilities Association of America, a huge parent organization devoted to advocacy for children with LD, strongly opposes the use of formulas.

Another problem is that when an MDT uses a formula, it almost inevitably becomes the sole determiner of eligibility. The USOE has repeatedly warned against reliance on a formula and failure to use clinical judgment. This early statement is typical:

> In establishing the existence of a severe discrepancy, the team has to make a judgment about the importance of any difference that exists between expected and actual achievement. Making this judgment requires more than just the use of a formula to establish a discrepancy score. For example, a two year difference between achievement and intellectual ability at age seven has a different meaning than a two year difference at age sixteen. In the event that the assessment team determines that a child has a specific learning disability, even though the application of the formula indicates that he does not have a severe discrepancy between expected achievement and actual achievement, the team judgment must prevail (O'Grady, 1980).

Despite the clear legal constraints on use of formulas, MDT teams still put their trust in formulas and overrely upon them.

Yet another problem with formulas is the necessity of choosing two and only two scores to enter into the formula. We all learn in Measurement 101 that no child can be reduced to two test scores or dots. Yet that is exactly what every discrepancy formula does. Even if we were to allow that procedure for some children, the child suspected of having a learning disability would be the last one for whom it would make sense.

Consider the following information from the file of Joe, a 12-year-old 7th grader:

Reading:

- 2.7 grade equivalent on decoding test A
- 3.6 grade equivalent on comprehension test B
- 4.5 grade equivalent on vocabulary test C
- 50-75 words per minute/5-10 errors in 3rd grade material
- Standard Score of 74 on overall reading test D
- 8 percentile on reading decoding subtest E
- 26 percentile on a reading comprehension subtest F

Intelligence:

- S-B IQ 122
- Slossen IQ 119
- WISC V 128; P 91 (1993)
- WISC V 118; P 96 (1994)
- PPVT 112
- Woodcock-Johnson Cognitive SS 110

If the lowest reading score were compared to the highest IQ score, the discrepancy score would be far, far larger than if the highest reading score were compared to the lowest IQ score. Even if only one reading and one ability score are available, the problem is the same. Either score could be at either end of Joe's true range of scores, and we have no way to know which is where or what is what. Again, no child should be reduced to two dots. We will return to Joe later and suggest a solution to the two-dot problem in all formulas. But first it is important to ask why so many remain enamored of a formula, cling to it, and rely upon it when the law and good practice mandate otherwise.

Why Formulas are Still Used

The continued use and abuse of formulas to define severe discrepancy often results from three factors: (a) the MDT lacks sufficient knowledge and expertise about LD to rely comfortably on professional, clinical judgment; (b) MDTs fear the legal system and mistakenly rely on a formula for "protection;" and (c) many special education professionals today value technical adequacy over professional judgment. More needs to be said about each reason.

First, the characteristics of LD are in fact multidimensional and complex. New research is continually and rapidly expanding our knowledge base (e.g., Lyon, 1993). This complexity cannot possibly be captured in two test score dots. Identifying a learning disability when one exists requires knowledge of the characteristics of LD, experience teaching children with and without LD, and effective teaching skills to help determine when a learning problem isn't LD. And even an initially well qualified MDT team must be updated constantly on research developments to help guide its decision-making.

The lack of knowledge of LD characteristics is perhaps best exemplified by the continued reliance on norm-referenced achievement and IQ tests while far more strategic tests (e.g., phonemic or phonological awareness) are ignored because they don't fit into the formula approach to severe discrepancy. Unfortunately, many MDT members are uncomfortable with their own knowledge of LD and consequently, prefer to rely on a formula. The IDEA regulations require two more professionals on every team assessing a student suspected of LD than are required for assessing any other disability. This mandated expansion of the team is a response to the admitted difficulty of the task of LD identification and the expertise it requires.

Due to the overreliance of MDT teams on norm-referenced IQ and achievement tests, however, even legally constituted teams too often defer to school psychologists because of their specialized knowledge of tests and measurement, standard scores, and regression formulas. When this occurs, the professional judgment of the special education and other teaching personnel who know the child the best is superseded by the discrepancy formula.

In addition, school personnel are under the misconception that the legal system (i.e., judges and hearing officers) prefers the use of numbers over professional judgment in determining eligibility for special education. On the contrary, we are aware of no cases where courts or hearing officers found that a team relied too much on professional judgment and not enough on a discrepancy formula. In Riley v. Ambach (1980), the court did find that an eligibility determination could rely unduly on a formula at the expense of professional judgment. The message for those who fear the legal system is to depend on the team's professional judgment while considering test results — not vice versa.

We also suspect that school districts continue to use discrepancy formulas because the "zeitgeist" in special education presently devalues clinical and professional judgment and places greater value on technical adequacy. In the early 1960s, when the field of learning disabilities was in its infancy, clinical expertise was greatly respected. Pioneers in LD such as Sam Kirk, Newell Kephart and Marianne Frostig were all master clinicians. The tests that in their hands were precision instruments — the ITPA, the Purdue Perceptual Rating Scale and the Developmental Tests of Visual Perception — were quite literally obliterated by the 1970s focus on technical adequacy and number crunching, enabled and bolstered by software and hardware previously unknown. The loss was significant. We can only hope that special education's thirty-year cycle will soon return clinical expertise to its rightful place in LD identification. However, there is presently a dearth of expertise to be returned.

The Story of One More Proposed Formula

The tale of the LD formula problem perhaps can be highlighted in closing by examining a real and recent proposal for yet one more mathematical approach to defining LD. During September and October of 1994, the Office of Special Education of the Oregon Department of Education sponsored three regional forums and one Ed-Net broadcast to promote awareness and acceptance of Good's (1994) proposal for defining the LD-related concept of severe discrepancy as student achievement "reliably and unusually below the average of their age and grade peers." Good limits the formula itself to defining discrepancy. Then, without acknowledging he does so, Good uses discrepancy to define eligibility. While using discrepancy in this way reflects exactly the practice of ill-informed MDTs, it does not fulfill the threefold eligibility criteria of the law — the presence of a severe discrepancy between the child's ability and achievement; reason to believe the discrepancy is due to LD, not the excluded conditions; and a judgment that the student needs special education because of a learning disability.

Such a radical proposal deserves careful attention. In a 28-page handout which accompanied the presentation, Good raised what he calls eligibility issues. The first is the clinical judgment or "eye of the beholder" aspect of identifying LD. However, to object to the need to draw lines or exercise judgment is to object to much of the human endeavor and to the identification of almost all disabilities. Even so-called medical diagnoses such as ADD require line drawing.

Second, Good objects that not every district, state, or MDT identifies the same proportion of students as LD. Twenty-nine Oregon counties identify 5-8% of their K-12 students as LD, four identify less than 5%, and three identify 9-10% as LD. This variation may be due to better regular education in some counties than in others and/or to the fact that LD may be caused by factors which operate differentially in different communities such as pollution, parental drug use, inadequate nutrition, genetic patterns, lead poisoning, and numerous others. The only way to obtain the same proportion of LD in every community is to disregard reality and instead use an arbitrary, mathematical method.

Good also suggests that LD may "proliferate without restraint." However, the topic here isn't rabbits on the loose, it is a disability whose national numbers leveled off in 1986 and haven't risen since. Since the incidence of identified LD students was zero in 1977, it isn't surprising that it took several years to rise to its present level of about 50% of the total school population which is identified as disabled.

Good presents four types of discrepancy methods and rates each on three criteria. His score card indicates whether each method produces discrepancies which are (a) reliable, (b) occur "very seldom" in the general population, and (c) are meaningful (i.e., persons with the discrepancy differ in educationally important ways from persons without the discrepancy).

The developmental discrepancy (using ability minus age or grade equivalents) and simple discrepancy (standard score comparison of IQ and achievement) methods are both dismissed as meeting none of the criteria. The regression discrepancy method, which mathematically improves the prediction of achievement from IQ over that obtained from the simple discrepancy method, fails to meet the criterion of meaningfulness. Good then concludes we should declare the lowest performing 6% of the students compared to "their age and grade peers" (p. 19) to have a severe discrepancy. It is unclear whether the norm population is to be the classroom, building, district, state or national group. It is also not clear whether the norms are to be based on age or on grade.

However, these problems are minor compared to the legal issue. It is difficult to avoid the conclusion that this "Bottom Six Percent are Discrepant" (BSPAD) proposal, as we shall call it, is against the law.

In 1980, the Bureau of Education of the Handicapped directly addressed the impropriety of defining discrepancy relative to a norm: "Clearly the intent of the regulations is to insure that each child is measured against his own expected performance and not against some arbitrary general standard" (O'Grady, 1980).

Just two years ago OSEP reiterated this view in almost exactly the same language: "It is OSEP's position that each child who is evaluated for a suspected learning disability must be measured against his or her own expected performance, and not against some arbitrary general standard" (Ulissi, 1992).

Finally, BSPAD is a proposal to equate low performance with learning disabilities, to use the LD label almost exclusively for students who are slow learners and borderline retarded, and to refuse to recognize the learning disabilities of the highly gifted student (e.g., who performs at the 7th percentile when she could be at the 97th percentile with appropriate intervention). BSPAD denies the essence of learning disabilities. It mocks the concept. It disparages the prolific and productive research now yielding exciting new evidence on the neurology, biochemistry, and genetics of LD. It flies in the face of the everyday reality of every family and every individual who lives with LD.

A Better Way

What should be done? First, no team should ever attempt to determine LD eligibility unless at least one member of the team, and preferably more than one, has genuine expertise and experience with LD. The law envisions no less, and every child is entitled to at least that.

Second, no team should ever rely on a formula. If quantitative guidelines are to be used, they should be of the type Good calls developmental even though he finds they fail to meet his three criteria. These ask how far behind expected level the student is, measured in years or grade levels. They lack technical sophistication and therefore won't be unduly relied upon. They communicate to teachers and parents. And they are exactly what the law intended. This statement from the federal agency responsible for administering IDEA was quoted earlier and bears repeating:

> In establishing the existence of a severe discrepancy, the team has to make a judgment about the importance of any difference that exists between expected and actual achievement. Making this judgment requires more than just the use of a formula to establish a discrepancy score. For example, a two year difference between achievement and intellectual ability at age seven has a different meaning than a two year difference at age sixteen (O'Grady, 1980).

The question of which measures of achievement and ability should be compared (i.e., the two dot problem) remains. Let us return briefly to Joe and his file full of data. What should happen? Each member of the team must form his or her overall professional opinion as to the child's ability status and achievement status. For example, one member might conclude Joe's reading is very slow and labored, at a high third to low fourth grade level, and below the level of true independent reading. That person might describe Joe's ability as a good notch above average (weighing verbal scores more than performance), and thus conclude that Joe ought to be reading at or slightly above grade level. Since Joe is headed into middle school unable to read content texts effectively, our team member says Joe has a severe discrepancy. On the other hand, someone might argue that his IQ of 91 is very close to a percentile of 26, which is exactly what one of his reading tests shows, so there is no discrepancy. The first team member has avoided the "two-dot pitfall;" the second has not. The first exercised professional judgment; the second could have had a machine pick the highest achievement and lowest ability scores.

Next, the team must thoroughly consider whether a severe discrepancy, if found, is due to LD. It must rely on the expertise of its members to do this. And finally, that same expertise and teaching experience can decide whether special education is needed. The key is an MDT truly knowledgeable about and experienced with LD. It is that simple. And that difficult.

Conclusion

If we have conveyed the message that identifying children with learning disabilities is a complicated process that places great responsibility on MDTs, than we have met our objective. The law clearly recognizes the difficulties involved in making a professional judgment in regards to special education eligibility for a child suspected of having a learning disability. Nevertheless, MDTs are charged with making this professional judgment based on their expertise and experience with LD, as well as objective information about the child. If an MDT exercises its members' combined professional judgment and determines that there is a severe discrepancy between the child's expected performance and achievement, the discrepancy is not "primarily the result of" one of the excluded conditions, and the child needs special education, then a legally correct and professionally appropriate decision will be made. If, on the other hand, an MDT equates finding a discrepancy with special education eligibility, defines discrepancy as the difference between two highly-correlated, norm-referenced tests, or fails to consider its professional knowledge of LD in its decision making, then the law and the child will be violated.

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ADHD : A Teachers' Guide

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AS OBSERVED FIRST HAND IN THE STATE OF ILLINOIS AND THROUGH EXAMINING THE LITERATURE, there have been an alarmingly high number of students diagnosed as having Attention Deficit Hyperactivity Disorder (ADHD). Subsequently, teachers are concerned and want information on how to educate students who are impulsive, distractible, moody and anti-social. Educational theorists tell us that acquiring knowledge about ADHD is the first step in helping these challenging children and youth. However true, this can be time consuming, if not impossible, for educators faced with the daily demands of teaching. Hence, on the following pages, teachers will find a brief historical outline of ADHD, its definition and the behavioral characteristics associated with the disorder. Also provided is a condensed guide to help create successful learning environments for students with attention deficits.

Historical Perspective of ADHD

Conditions surrounding hyperactivity in children have been recognized for the past fifty years but have been called many different names. In the 1930s and 1940s, the terms "brain damaged" or "brain injured" were used (Lerner & Lerner, 1991). By the 1950s and early 1960s, names such as "minimal brain dysfunction," "hyper kinetic behavior disorder," or "Strauss syndrome" were applied to children who were overactive. "Hyperactive child syndrome" was the dominant term utilized in the late 1960s and 1970s (Silver, 1990). But in 1980, the *Diagnostic and Statistical Manual of Mental Disorders* (DSM III) of the American Psychiatric Association (APA) replaced the term "hyperactivity" with attention deficit disorder (ADD). At that point, ADD was defined with two categories, attention deficit disorder with hyperactivity and attention deficit disorder without hyperactivity. However, the most recent change in terminology of attention deficit hyperactivity disorder (ADHD) came when the DSM III was revised in 1987. Although the term "hyperactivity" was incorporated into the new wording, a child could exhibit little or no hyperactive behavior and still be considered ADHD as long as sufficient evidence of impulsivity and an inability to concentrate for long periods of time existed.

Finding a specific name for attention deficits has proven a confusing ordeal; however, deciding upon a clear definition and diagnostic criteria have created even more puzzlement. Reflecting on the most recent change in language, Goldstein & Goldstein (1992, p. 11) stated: "This change was not well received by the professional community, and in all likelihood the clinical definition and/or the label will change again."

Defining ADHD

Many professionals (Goldstein & Goldstein, 1992) believe that the name of the disorder and criteria currently used to define and diagnose it imply that children have to be overactive, when research (Moss with Dunlap, 1990) shows only a small percentage (30%) of those diagnosed are hyperactive. Nevertheless, until a new name and/or definition is developed, the current definition for attention deficits, as noted in the DSM III-R, refers to inappropriate degrees of inattention, impulsivity, and hyperactivity for the developmental age of the child. The disorder is manifested across most settings (home, school, and community) and has an onset at an early age—usually before seven years old. In addition, the condition must be ongoing for at least six months. Finally, a child must exhibit eight or more of the fourteen diagnostic criteria listed below before he or she can be diagnosed as having ADHD.

It is estimated that three to five percent of all school-age children, approximately one to two million students, have ADHD (Weaver, 1991) and two to eight times more boys than girls are diagnosed with the condition (Lerner & Lerner, 1991). Information about ADHD is sometimes confusing and contradictory, and much controversy exists over whether attention disorders should be included in the handicapping conditions that require special education services. Those opposed to children receiving special services under the category of ADHD believe that these children are already receiving needed help under the cat-

Diagnostic Criteria for Attention Deficit Hyperactivity Disorder

- often fidgets with hands or feet or squirms in seat (adolescents may be limited to subjective feelings of restlessness)
- often shifts from one uncompleted activity to another
- has difficulty remaining seated when required to do so
- has difficulty playing quietly
- is easily distracted by extraneous stimuli
- often talks excessively
- has difficulty awaiting turn in games or group situations
- often interrupts or intrudes on others (e. g., butts into other children's games)
- often blurts out answers to questions before they have been completed
- often does not seem to listen to what is being said to him or her
- often loses things necessary for tasks or activities at school or at home (e. g., toys, pencils, books, or assignments)
- has difficulty following through on instructions from others (not due to oppositional behavior or failure of comprehension); e. g., fails to finish chores
- has difficulty sustaining attention in tasks or play activities
- often engages in physically dangerous activities without considering possible consequences (not for the purpose of thrill-seeking); e. g., runs into street without looking

egories of specific learning disabilities (LD) or serious emotional disturbance (ED). Lerner & Lerner (1991) noted that behavioral similarities do exist between children who are LD, ED, and ADHD. Shaywitz & Shaywitz (1988) suggested that 33% of children who are LD also have ADHD. In addition, 30% to 90% of children who are diagnosed with attention deficits have conduct problems (Frick & Lahey, 1991) and are probably receiving special education services under the category of ED. Yet, according to Epstein, Shaywitz, Shaywitz, and Woolston (1991), ADHD may be an underdiagnosed condition (especially ADHD without hyperactivity, or ADD) due to lack of knowledge, assessment differences and the reluctance to label children.

No matter how controversial, on September 16, 1991, ADHD was recognized as a disability under the Individuals with Disabilities Act (IDEA), Public Law 101-476 by the U. S. Department of Education. In other words, Congress decided that if the primary disability was ADHD, then a student was eligible under the "Other Health Impaired" category of IDEA for special education services. However, since there is still confusion and controversy over the exact definition and nature of the syndrome, it may be some time before Individual Educational Programs (IEPs) are developed specifically for students with ADHD. Laying controversy and confusion aside, children with attention problems exhibit characteristics that make them significantly at risk for having long-term academic, social, and emotional difficulties (Epstein, et al., 1991) and need educational programs that will ensure they experience success.

Characteristics of Students with ADHD

Teachers are concerned about adequately educating attention deficit students when they exhibit disruptive behaviors. What makes them such a challenge to motivate? Practitioners and theorists (Moss 1990; Hartmann, 1993) highlight the following characteristics as those that cause students to be unsuccessful in school environments.

- **Short attention spans and distractibility** or the inability to concentrate for long periods of time are primary characteristics of children who are ADHD. This becomes a serious problem by middle school years, when there is less repetition in the classroom and more independent work required. Since students with ADHD cannot regulate the variety of stimulation that is entering their brains at a given time, it is impossible for them to focus on important stimuli within the classroom. Many students are unable to concentrate long enough to complete written or reading assignments. Teachers lacking knowledge about ADHD may view these students as oppositional, defiant, or lazy.

- **Impulsivity,** or acting before thinking, causes severe problems for many students. Since many students cannot concentrate, they do not take the time to consider the consequences of their actions. They frequently interrupt—jumping up and yelling out an answer to a question before the teacher has had time to finish asking the question. Without thoroughly reading the problems and thinking about the answers, they hurriedly write responses that make little sense. In their haste, their handwriting is often illegible and their work will have many spelling, mechanical, and grammatical errors. Teachers become frustrated with such students and often feel they are intentionally trying to get out of work.

- **Free flight of ideas** is related to distractibility. When unrelated ideas continually pop into a child's mind, it distracts him from concentrating on the task at hand. On the one hand, he may habitually daydream and appear to be in another world. On the other hand, his mind may be going "one hundred miles a minute" and in fear of losing an idea that might impress the teacher, he may blurt out thoughts and take over group discussions—forgetting social politeness and classroom rules. He may annoy peers and teachers by making unkind or unrelated comments that pop into his head. But we must keep in mind that this characteristic is not something students can control.

- **Poor organizational skills** is a condition of attention deficit disorder that causes middle school children the most difficulty. At this point, students are required not only to change classrooms frequently but to remember all needed books, materials, homework, gym clothes, lunch money, jackets, musical instruments and after school sports equipment. This increased demand for organization becomes a nightmare for students who are attention deficit. To make matters worse, individuals at this age are required to organize complex thoughts, write essays, do book reports, give speeches, complete multi-step problems and do experiments. These tasks are, at times, incomprehensible or impossible for students who are attention deficit. Being faced with angry adults and continual failure, many youths give up trying to succeed in school. To add insult to injury, the pre-teen and early teen years are times when young people desire peer acceptance; however, adolescents with ADHD (who don't like themselves and feel like failures) have difficulties developing friendships.

- **Insatiability,** or an unquenchable desire, is not as common of a characteristic as those mentioned above and usually is seen in younger children. Children who exhibit this characteristic are chronically dissatisfied no matter what is done for them. A kindergarten child who is attention disordered may throw an intense fit because he wants a snack. After eating crackers and juice, he may immediately have a raging tantrum over a toy he doesn't want to share.

- **Hyperactivity,** or the inability to control motor activity, actually affects less than 30% of children and youth who have ADHD. Children who are overactive move from one task or item to another with little or no purpose. Their activity levels increase with increased stimuli from the environment. A simple game of musical chairs can become a disaster as the noise becomes louder and children move faster to get the empty chairs. Like insatiability, hyperactivity seems to affect young children, and to decrease or disappear by the time the child becomes an adolescent.

- **Social immaturity,** or lacking social skills needed to develop relationships, is indirectly related to distractibility. When children are easily distracted, they have difficulty learning social cues and social nuances essential in early elementary school for peer acceptance. The socially immature student is often rebuked by teachers and peers to act his age.

- **Performance inconsistency** is occasionally found in children with ADHD. One day, the student will remember all needed materials, turn in homework, and receive A's on all class assignments, but for the next several days may not remember any materials, make countless mistakes, and get failing grades. This inconsistency is frustrating not only for teachers but for the student who hears over and over again, "What's wrong with you? I know you can remember your stuff and do the work. You did it before. You're just not trying!"

- **Inflexibility,** or the inability to tolerate change, is a common characteristic among children with ADHD. When classroom schedules are abruptly changed, some children may respond with immature behavior such as throwing tantrums or name-calling. Also, changing a room's physical space or seating arrangement may be met with a strong objection. Since attention deficit children's mental and physical activity are impossible for them to control, they may feel impelled to try to control their classroom placement and schedule.

- **Mood swings,** or the emotional state of students with attention problems, will be marked with inconsistency. Not all children with attention disorders will exhibit mood swings, but those who do may experience uncontrollable laughing to crying inconsolably to outrageous fury to deep depression, all in a given situation. Poor self-esteem and sheer frustration from trying to succeed may trigger this emotional roller coaster that many children have to endure.

- **Poor short-term memory** difficulties of children with attention problems baffle teachers. Because of their attention deficit, individuals fill up their minds with insignificant details. Short-term memory problems make it impossible for them to follow more than one direction at a time. The problem increases as students enter middle and high school, where the demands upon the memory increase.

At this point, readers may have recognized that many of the characteristics of attention disorders discussed above are similar to, if not the same as, characteristics of other known childhood disorders. Furthermore, many age-typical behaviors that children without ADHD exhibit during various stages of development are the same behaviors that create difficulties for children with ADHD. Why? Because the behaviors are not age-appropriate and teachers find them challenging to cope with in classroom settings. Listed below are disorders that have similar characteristics when compared to attention deficit disorders.

Disorders that Mimic the Characteristics of ADHD

In the literature, Hartmann (1993), Goldstein and Goldstein (1992), and Moss with Dunlap (1990) tell us that attention deficits may be misdiagnosed because many characteristics of other disorders are similar to those of ADHD. These conditions may include the following:

Anxiety Disorders

Individuals who are experiencing an anxiety disorder may feel anxious when faced with specific stressful situations, but the feelings of nervousness fluctuate from severe to mild to none at all. People who have ADHD will feel anxiety on a constant, lifetime basis.

Conduct Disorders

At times, the non-purposeful, impulsive problems of overactive children may be misdiagnosed as conduct problems. However, students with conduct difficulties are usually destructive and aggressive with malicious forethought. They frequently violate the rights of others for their own gain or pleasure.

Learning Disabilities

Overwhelmed with years of academic failure and negative interactions from adults, students who are learning disabled may exhibit intense emotions, excessive activity, and inattention when faced with the demands of learning. However, children with ADHD will exhibit these behaviors evenly across school, home and community situations and not limit the behavior to only stressful situations.

Depression

People who are depressed may be extremely distractible, which may be misdiagnosed as ADHD and visa versa. However, like anxiety disorders, the distractibility associated with depression comes and goes, yet individuals who have ADHD will experience a continual level of distractibility.

Manic-Depressive Illness

Many people who have attention deficits experience severe mood swings, and therefore are misdiagnosed as suffering from manic-depression. With an incorrect diagnosis comes an inappropriate drug for treatment, which usually causes the undesirable results of extreme emotional highs followed by deep depressions.

Seasonal Affective Disorder

Seasonal Affective Disorder (SAD) and ADHD are often interchangeably misdiagnosed because with both disorders, individuals experience depression, lack of motivation, lethargy, and distractibility. However, people who have SAD and not ADHD will experience symptoms only during the winter months or those months that have little sunlight.

As with finding a satisfactory name and definition, the search for the correct treatment of attention deficits has caused much debate and uncertainty. Pitted against each other are those who believe that medication is the best form of treatment versus those who conclude that treatment should involve remediation of skill deficits in the child's environment.

Treatment of ADHD

However controversial, research (Maag & Reid, 1994; Hartmann, 1993; Goldstein & Goldstein, 1992; and Moss with Dunlap, 1990) shows that medications such as Ritalin, Dexedrine, Desoxyn, Cylert, and other stimulants are considered the most common treatment for attention deficits. Among the benefits, it is reported that with the use of medication, children have improved social and academic behavior. Yet, heated controversy surrounds the use of drugs because they cause harmful side effects such as growth suppression, drug and alcohol addiction, lack of appetite, insomnia, and irritability. Also, one hyperactive child in 100 develops body or vocal tics when using stimulant medications, and the use of stimulant drugs have been linked to serious body and vocal tics or Tourette's syndrome.

Looking at the drug debate from another perspective, some believe (Maag & Reid, 1994; and Moss with Dunlap, 1990) that treating children who are ADHD with medication is currently being viewed as a "cure all" instead of one part of a total treatment plan. In other words, when medication can only control one or two symptoms, parents, teachers, psychologists and physicians believe that drugs can resolve the child's total disorder. These theorists and practitioners (Maag & Reid, 1994; Hartmann, 1993; Goldstein & Goldstein, 1992; and Moss with Dunlap, 1990) believe that comprehensive treatment plans that include the home, community and school environments must be developed. For example, parents, teachers, and community members would have an equal role in teaching academic, social, and organizational skills. Viewing attention disorders from this perspective, what is the teacher's role, and how can teachers create learning environments where children with ADHD succeed academically and socially?

Making School Successful for Students with Attention Deficits

Goldstein and Goldstein (1992) note that it is essential to make school successful because children with ADHD will be unable to overcome emotionally the thirty or more hours a week of academic and social frustration and failure. Those knowledgeable about attention deficits (Maag & Reid, 1994; Hartmann, 1993; Goldstein & Goldstein, 1992; Lerner & Lerner, 1991; and Moss with Dunlap, 1990) promote many strategies that teachers can use to make school productive for children with attention deficits.

Knowledge of Symptoms and Attitudes Surrounding ADHD

First, teachers who work with children who have attention problems must become knowledgeable about the signs and symptoms of ADHD. In addition to knowledge, attitudes and beliefs about the disorder must be recognized and altered (Lerner & Lerner, 1991). Attention deficit children are not lazy. They are not troublemakers. And they do not try to get out of school work. They may avoid tasks that are painful, such as writing a story when they cannot organize their thoughts or write legibly on paper. However, teachers can use alternatives such as computers, tape recorders, or allow students to tell their stories orally.

Characteristics of Successful Teachers

Teachers who work successfully with attention deficit students are those who can cope with frustration and stress. Attributes such as patience, understanding, empathy, and caring are needed when working with this extremely challenging population. Students need to know that there is someone who understands why they have difficulty listening, writing, reading, doing math, or keeping mouths and bodies quiet and still (Moss with Dunlap, 1990). They need teachers who can see beyond the symptoms of the disorder—who can give positive attention and caring assistance and know how to ignore inappropriate behavior.

Classroom Environment

Next, the classroom environment needs to be developed to fit the unique needs of students with attention deficits. Many children can be distracted by classroom noise, confused with tasks that have many steps, or frustrated with activities that are given with time limits (Lerner & Lerner, 1991). Classrooms where many activities are going on may be disruptive to attention deficit children, unless they are working cooperatively and have been assigned specific roles. When the classroom has a set (but not boring or rigid) routine, it helps students to organize tasks and complete assignments. When there is a change in the daily schedule, it is helpful to prepare students in advance. For example, if a substitute teacher will be in the room, if an assembly will take place, or if the geography lesson takes longer than anticipated, students will find it easier to adjust if they have been told prior to the change.

Seating near the teacher is sometimes beneficial because a teacher can use proximity to keep students focused without disrupting the rest of the class. But being near the teacher should never be used as a punitive measure. At times students may need the option to go to quiet areas in the classroom or to an area outside the classroom such as the library to concentrate. Isolation should never be enforced or used as a punishment, and students should understand that being alone for a short time may help them focus.

Modifying the Curriculum

Not only does the environment have to be designed with forethought, but subjects must be modified to fit the needs of each student with an attention deficit. Teaching would be easier if all students with ADHD had the same academic difficulties, but this is not the case. Each student with an attention disorder will have unique needs. It is the teacher's responsibility to evaluate the child's capabilities and set realistic goals. With practical goals, students should experience academic success which will enhance their strengths and build self-images (Moss with Dunlap, 1990). Take spelling, for example. If students cannot spell, is it best practice for them to take twenty word tests weekly that they always fail? Would it not be better to give students a grade for defining the words, taking the test orally, or completing a ten or five word test? If a traditional curriculum is used, simply shortening the required assignments and focusing on process rather than product will allow most students with attention deficits to experience academic success.

Other educators (Hartmann, 1993) recommend developing a curriculum so students who have attention difficulties are "doing" rather than sitting and listening. He suggests developing programs that utilize experienced-based learning, where students complete projects, do experiments, and take field trips. Still others (Jones & Jones, 1995) encourage the use of cooperative groups so that students can learn interaction as well as academic skills.

Classroom Procedures and Rules

Teaching is demanding, fast-paced, and creates chaotic environments. With these types of conditions, there is confusion and frustration throughout the school day (Jones & Jones, 1990), which may cause students to become totally lost. Therefore, children with attention difficulties must know and understand classroom rules and school procedures in order to be successful. Research studies (Jones & Jones, 1995) tell us that students who contribute to developing the rules and procedures will feel committed to following them. For children with short term memory difficulties, rules must be displayed in the room as a visual reminder, and teachers will have to patiently teach and reteach rules in order for students to retain and follow. Once rules have been implemented, it is essential for teachers to follow through with consequences when there are rule violations. On the one hand, children with attention disorders are great manipulators and know how to "wear down" adults with their chronic disruptions, misunderstandings, or misbehavior. On the other hand, teachers who are at their "wit's end" and completely frustrated, may feel they do not have the energy to enforce a consequence and deal with the verbal abuse or tantrum that may result. A helpful strategy is to *positively* and firmly deal with the behavior before it escalates into a battle. Using methods that attack the character and personality of the child (embarrassment, ridicule, or humiliation) will lead to children seeking revenge and losing trust in their teachers (Ginott, 1972). Goldstein and Goldstein (1992) suggest giving only positive directions or telling children what adults want to have happen instead of telling them what they don't want to have happen. ("I want students to raise their hands." instead of "Don't yell out the answers.") Wood and Long (1991) promote telling students what they "can" do instead of telling them what they can't do. ("You can put your feet on the floor and use the table for your books." instead of "You can't put your feet on the table. Get them off!") Using non-confrontational language will help teachers avoid power struggles with student who already may be overwhelmed and frustrated with academic and social expectations.

Helping to Listen and Attend

Teachers working with attention disordered students need to use techniques that teach students how to listen and will hold their attention. First, it is important that teachers speak clearly, not too fast, and loud enough for students to hear and understand. If listening becomes a chore, students will daydream instead of trying to figure out what the teacher wants. It may be helpful to have a student repeat the directions so that all students will hear them for a second time. Writing directions and information on the board will give children a visual representation and help them remember what comes next. Second, it is essential for teachers to show enthusiasm for the subjects they teach. Enthusiasm engages and excites children who are easily bored and distractible. If the teacher comes across as disinterested, students who need to see a value in what they learn will feel the material is not important. Third, teachers who use humor are most successful with holding the attention of students whose minds are usually preoccupied with other thoughts. Jokes, comical anecdotes, and embellishment of facts have a way of holding the attention of students and help them remember important facts (Moss with Dunlap, 1990). Fourth, teachers who use class discussion and lecture methods should ask many questions to keep students' attention and employ any minds that may have wandered on to other thoughts. Listing main ideas or important questions that need to be answered on the chalk board will help distractible students to focus during lectures, discussions, or viewing of films.

After adopting techniques that help students listen, teachers will have to develop ways that maintain their students' attention. It is not realistic for teachers to expect children with ADHD to be totally engaged and learning like non-ADHD students. However, developing cues or signals that remind a student to go back to work will greatly increase his learning behavior, which in turn will help him succeed academically. Mutually, teacher and child should select a signal that is unobtrusive and non-disruptive to the flow of the classroom or the learning process. A gentle pat on a student's shoulder, a teacher tugging her own ear or pointing to the child's work are signals that have proven effective in getting students to refocus. In addition, breaking assignments into small parts and rewarding after each step is completed will help a children with attention deficits to feel successful. These feelings of success will, in turn, motivate them to continue to work on assignments.

Giving Breaks

It is necessary to give students who are ADHD many small breaks during a school day because they consume so much energy trying to stay focused and completing activities. Simply allowing students to stand up and stretch will help relieve frustration and anxiety. Breaks can be used not only to release tension, but can allow time for students to get drinks, sharpen pencils, and use the restroom. Playing a quick game of Simon Says is an enjoyable way to rejuvenate tired minds. Students who are ADHD will need more opportunities for movement than their peers. Allowing these active children to take notes to the office, feed class pets, return books to the library, and help janitors or cooks are effective ways additional movement can be incorporated into their daily schedules. In addition, heavy doses of affirmation will build self-esteem and make students feel like valuable members of the class.

Homework

Most students with ADHD feel homework is unfair and usually refuse to do it. To compound the homework dilemma, school systems are structured in such a way that homework is necessary for children to succeed. Teachers can help parents and students succeed by agreeing to develop a plan for homework. A plan may include teachers scheduling study times during the school day for students to complete homework, while teachers are available to give additional help. Other teachers opt to use homework notebooks, where students are required to copy down the week's homework schedule, take it home, get a parent to examine and sign it, and return it to school for teacher's approval. Some schools are fortunate enough to have automated telephone systems where teachers can leave homework assignments and parents can call to get the needed information. One must note, however, if children do not value homework, they will sabotage any homework plan that is developed. Teachers and parents need to work together consistently to show children that adults are persistent and serious about having homework completed.

Conclusion

We know that embarrassing, humiliating, nagging, and name-calling our students with attention disorders causes them to retaliate, seek revenge and to ultimately fail at school. As the number of children being diagnosed increases, it is of utmost importance for teachers to become familiar with the characteristics of ADHD and to develop new, informed attitudes concerning attention deficits. As knowledge and awareness about attention deficits expands, educators have to learn new ways to develop and implement effective learning strategies. Hopefully, with knowledge, all teachers will come to understand what an important role they play in helping children with ADHD experience success in school.

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Knowledge About the Brain for Parents, Students, and Teachers: The Keys to Removing the Invisible Roadblocks to Learning and High Self-Esteem for All Students

Claude R. Beamish

UNDERSTANDING THE CAUSES AND RESULTS OF THE HUMAN BRAIN'S OWN REACTIONS TO STRESS and anxiety is the key to seeing the causes of and finding the solutions for most of today's increasing educational problems. Unneeded and unwanted anxiety and anger are the roadblocks to student and teacher success. Seeing the solutions will come through the combination of three pieces of knowledge. First is the knowledge on the brain about how learning takes place and what determines our aptitudes and talents. Material based on Jungian Psychology will be presented second. This material will be the basis for understanding the causes of the differing human temperaments that set up individual students and teachers for different levels of anxiety and anger. Thirdly, there are the results of six years of research in the classroom where the main causes of low achievement were found. A suggested method to correct many of our educational problems will follow the three individual pieces of the puzzle. We will start with the brain.

As the brain grows from birth until about 21 years of age, it increases in weight from 1 pound to 3 pounds. This happens as the brain moves through its transition from a child's brain to an adult's brain. This growth in size and weight occurs as the brain adds dendrites and glial cells. Dendrites are tentacle or branching-like growths added to the cell body of neurons as the brain learns and adds memory. Glial cells are "helper cells" that surround the neurons and fill the spaces between the neurons. The main job of glial cells is to feed and take care of neurons as they increase in size from the addition of large numbers of dendrites. A labeled drawing of a typical neuron is shown in Figure 1.

Messages come in through the dendrites to the cell body. When the cell body determines that the message should be passed on, the message is sent down the axon out to the dendrites of other cells. In those areas of the brain where the neurons have a myelin sheath around the axon, communication between neurons is faster and clearer. A myelin sheath is a layer of insulating fat that is laid down around the axons in genetically predetermined patterns. This

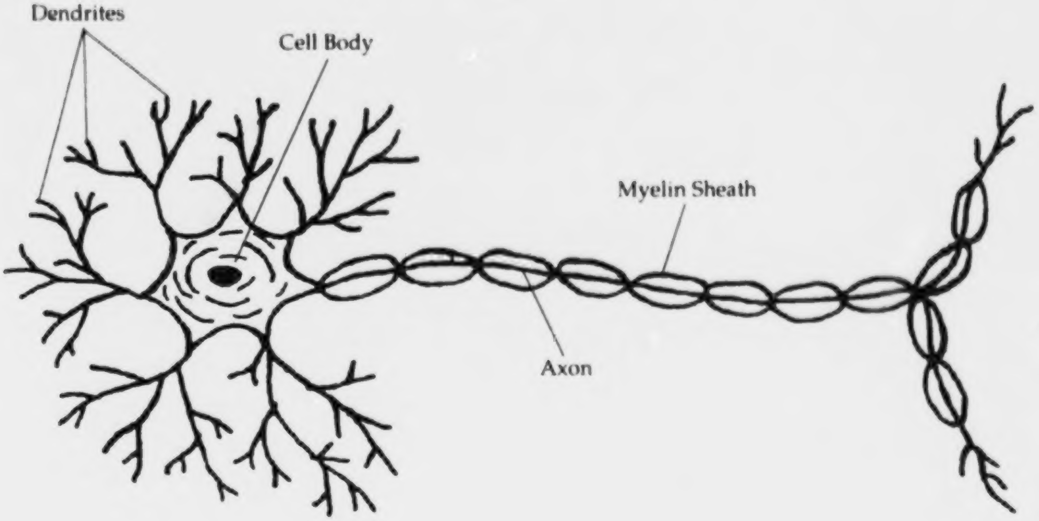

Figure 1. Diagram of a typical neuron.

addition of the myelin sheath to large numbers of neurons in specific areas of the brain is called "myelination." It gives individuals their specific talents and abilities at different times in their lives. The myelination of the axons of cells in different areas of the brain happens in a predictable sequence over a period of about 48 years. The process of myelinating portions of enough areas of the brain to have the abilities and tendencies for your true personality finishes by about 24 years of age. At age 24, with only half the brain myelinated, individuals tend to be more positive of their beliefs and, possibly, less tolerant of others. As the brain continues to myelinate the complementary areas of the brain, an individual should gain or strengthen some abilities that were missing or weak. This will only happen if the individual does not reject these new feelings and abilities. Along with gaining better or new abilities comes the ability to see the world in a different light. For many individuals this new awareness may cause them to go through what many call a mid-life crisis. This happens in the mid-forties when the brain, with its new awarenesses, may start questioning old strongly held beliefs and needs. Teachers passing through this crisis stage of life may have more problems getting their students to achieve. This is because any increase in anxiety or anger on the part of the teacher can cause anger and anxiety in the students that will form more roadblocks to learning.

The brain's reactions to events that cause stress and anxiety can have definite negative effects on the brain's rate or level of growth and development of dendrites. The human brain's natural method for dealing with stress, anxiety, or failure is to switch blood flow down in the brain so as to use the "limbic system." The limbic system is a faster acting portion of the brain that handles the more into-the-moment needs such as hunger, territorialism, sex drives, and other emotionally based situations (Paul MacLean, 1978). When an individual moves down to use the limbic system, long and short term memory are shut off. Since creating memory involves the development of dendrites and this development is shut off while the brain relies on the limbic system, basic brain growth also is slowed at this time. The act of moving down in the brain to use the faster acting limbic system was called "downshifting" by Leslie Hart (1983). The less flexibility, tolerance, and acceptance an individual has the more downshifting and the less brain growth or development of dendrites occurs.

The brain from left to right and top to bottom has a spectrum of differing abilities or tendencies (Sylwester, 1991). Remember, as the myelin sheath is added around the axons of neurons in specific areas of the brain, these areas gain greater speed, clarity, and ability. Each individual can have varying patterns of myelination, thus having varying talents and ability, possibly differing from the people around them. These abilities developed through different myelination patterns allow humans to cope with the needs of their differing and often complex environments, occupations, and activities. The further to the left side or the lower we go in the brain, the less flexibility, tolerance, and acceptance we see. This lack of flexibility, tolerance, and acceptance is both a partial cause of downshifting and a direct result of downshifting, since the brain has a tendency to move to the left and down during downshifting. Since downshifting is caused by this movement and also causes the same movement, downshifting can lead to a self-feeding negative spiral. Brain growth is curtailed during this time as long and short term memory (which entails the development of dendrites) are shut off. Individuals lose the development of their brain when they move down to use the limbic system during periods of anxiety or anger. Prolonged use of drugs or alcohol that impede the brain's ability to handle life's situations also curtails development or growth of the brain. Since the educational system seems to be responsible for the development of the brains of humans, avoiding downshifting in students should be very important to teachers, parents, and administrators. Remember, students cannot create dendrites (learn) when they are experiencing anxiety or anger. Since anger breeds anger and anxiety, teachers and parents should be careful to control their negative emotions if they expect their children to learn.

Since the brain is developing or myelinating over a period of so many years, teachers are dealing with students who have brains that have differing levels of development. In order to avoid downshifting, students need to be informed about their brain's structure and natural abilities, including the information about the function of and results of downshifting. Because students will be missing many aptitudes and abilities that they *may* gain later as the brain myelinates other needed areas, students should be given certain latitudes or freedoms while their brain is in transition. Punishing behaviors that are the result of an undeveloped brain or a brain that has not myelinated the neurons in a needed portion of the brain will cause these students to downshift into the limbic system. The resulting loss of long and short term memory will inhibit the brain development the educational system seeks.

Many of the differences between students, for which many students are looked down upon and often punished, are the results of differences in right and left hemisphere abilities or brain area usage tendencies. Students are locked into certain abilities or brain area usage tendencies because of the areas that are myelinated within each student's brain. These differences may or may not be compensated for in the later stages of brain development. Some students will be consistently on time with assignments and for activities or classes, others will not be. These are natural tendencies depending upon which hemisphere, or portions there of, are myelinated and being used by the students. Most left hemisphere dominant students, who have more myelination in the left hemisphere, have a natural need or tendency to finish projects and be on time (Figure 2). Because of the right hemisphere's tendency to explore, question, and enjoy doing varying exciting or interesting activities, many students who have greater myelination in the right hemisphere may often have problems being on time and finishing tasks on time. The prefrontal lobes of the brain, which give us the ability to plan ahead, do not become functional until between 17 and 24 years of age. This ability to plan ahead is a function that could possibly compensate for some of the missing left hemisphere myelination, but since it develops after most students are out of school, it happens too late to affect most students' educational experience. The left hemisphere functions of finishing and being on time are functions that are thought to be myelinated in only 50% of the population. The individuals in the other 50% of the population have areas in the right hemisphere myelinated. The right hemisphere myelination pattern can leave 50% of the students in a negative position in the view of many educators.

Other abilities that also develop when the prefrontal lobes myelinate are the feelings of empathy, compassion, altruism, and parenting. Right hemisphere dominant students will naturally have these tendencies, while left hemisphere students may seem to be missing these qualities until the prefrontal lobes develop. Those students showing a lack of empathy and compassion will have relationship problems with those students, teachers, administrators, and parents who highly value these characteristics. The downshifting that occurs because of the interaction of these individuals with different value systems is compounded by the act of downshifting itself. Individuals in a downshifted mode lose more of their abilities of empathy and compassion. This loss increases the behaviors that caused the downshifting in the first place. Right hemisphere dominant students have a distinct advantage in this area.

Another part of the human brain that is late to myelinate is the frontal lobe area. The frontal lobes do not myelinate until between 16 and 21 years of age. The development of the

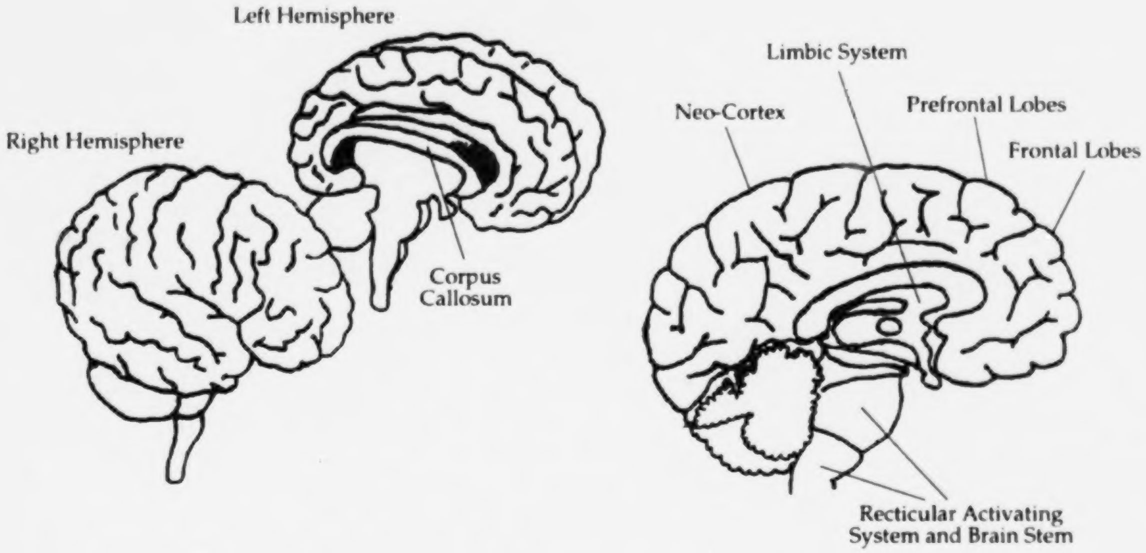

Figure 2. Diagram of the brain.

frontal lobes gives individuals greater complex thinking and problem-solving abilities. Here, it is also the right hemisphere dominant students who have an early advantage. When students have the appropriate areas of the right hemisphere myelinated, they have natural problem solving and complex thinking abilities. The right hemisphere's neural connection pattern allows it to be very quick and creative, coming up with many possible solutions, being able to see many possibilities, and questioning the future. Those students who inherit more of a left hemisphere myelination pattern usually will not do as well in school in the areas of complex thinking and problem solving.

Because of the different cell connecting patterns in the two hemispheres, it has been found through extensive testing that certain tasks are handled in specific hemispheres of the brain. Left hemisphere dominant students will usually have greater abilities in spelling, language, history, math computations, and business and organizational skills. Right hemisphere dominant students will usually have greater abilities in such areas as problem solving, creativity, creative writing, geometry, art, music, and visual-spacial skills.

So we see that there are natural "brain caused" strengths and weaknesses for each individual student. Some of these differences are caused by the brain not being fully developed. These problems may disappear when the brain finishes its growth. Other ability weaknesses in areas like spelling, writing, math, art, body coordination, music, problem solving, organization, and flexibility may continue throughout the life of the student. This does not mean that certain lower levels of proficiency in these abilities cannot be reached, it just means that learning these skills or abilities will be harder for those who lack the needed myelination. Our brain's myelination pattern determines our strengths and weaknesses. These differing abilities set us up for a tendency, need, or like for specific occupations. These occupations depend upon those skills or abilities at which our brain excels.

Since the educational system is the caretaker of millions of brains in transition from childhood to adult life, it seems that the most important goal would be to avoid anything that impedes the development of the students' brains. The most important problem that must be avoided is downshifting from the neo-cortex down to the limbic system. Downshifting causes long term and short term memory to be shut off. When this happens, dendrites or dendrite branches will not be created and the brain will not develop. Another problem which compounds the situation is that during downshifting the left hemisphere is used more often. This causes individuals to be more locked into their viewpoint, not being as able to consider the viewpoints of others. This lack of flexibility slows the maturation process that is needed for individuals to be more efficient in handling the problems in their world.

Since anger caused by downshifting causes downshifting in others, anger must be removed from our schools.

Since lack of ability leading to failure causes downshifting that blocks learning, the lack of ability of students must be handled so that downshifting does not occur.

The intentions of the members of the educational system have always been to help students learn. With this latest information, educators should be able to develop methods to increase student learning. It may be difficult to change some of our present practices, but the improved future of our children and entire society depends upon positive changes. Avoiding downshifting will inevitably lead to increased self-esteem, increased achievement, and greater happiness for all concerned.

As a part of the data collection portion of my research, I polled my students as to their happiness levels at home and at school. I found that 81.8% of students who were happy at home and school could achieve a 3.0 GPA or better. If students were unhappy at home but happy at school, only 80% of the students could still achieve a 3.0 GPA or better. When students are unhappy at school, even if they are happy at home, only 50% of the students in this group will achieve a 3.0 GPA or above. If the students are unhappy at school and at home, only 20% of these students achieve a 3.0 GPA or better. Being happy without anger and anxiety in school is the major factor affecting school success.

It seems very logical to most of us, when we take the time to think about it, that unhappy or angry children or adults will be less interested in doing high quality work. Consider the fact that members of different temperaments downshift or get angry for different reasons, and that people in each temperament group have different needs and expectations. With this in mind, it is easy to see that

Temperament Groups	**What others do that causes this temperament to downshift or be irritated**	**What this temperament would like others to do to please them**
SJ 38% of population are Left Hemisphere Dominant	Don't follow rules Question authority Question procedure Don't finish tasks Be late Be disrespectful	Follow rules Be on time Follow through with what you say Value their leadership Be respectful
SP 38% of population Left Hemisphere Dominant with Right Hemisphere influence	Give them orders Limit their freedom Question their values Hurt their friends Insist they do something else Deny them the right to believe differently to their beliefs	Ask them for help Consider their point of view Support their rights Be flexible Treat their friends well Accept their rights
NF 12% of population are Right Hemisphere Dominant	Yell at them Question their value Question their caring Not show you care Exhibit insensitivity Yell at others	Say you care Express their value Say they're needed Value their caring Recognize and appreciate differences in people
NT 12% of population Right Hemisphere Dominant with Left Hemisphere influence	Question their knowledge Question their veracity Make fun of their ability Argue illogically Talk down to them Create a commotion Be in authority without competency	Explain things well Value their thinking ability Compliment their abilities Accept their opinion Listen to them Agree with them

Figure 3. Common characteristics of the four major temperaments.

there is much opportunity for misunderstandings and disagreements leading to anxiety and anger. Figure 3 lists some of the more prominent characteristics of the four major groups or temperaments.

As evident in the figure, the needs and expectations of the different groups are quite diverse and often opposite. It is quite natural for people of different temperament to become irritated with each other. The problem is, since most people lack the knowledge of how their brain functions, they have little control over their negative emotions and behaviors. A recent newspaper article argued that since women who chose to have silicon breast implants did not have the correct information on the dangers of the procedure, they did not have true freedom of choice.

No Freedom of Choice Without Information

Students, teachers, administrators, and the parents cannot have true freedom of choice without knowledge of their brain and temperament.

You cannot have complete control over achievement without the proper information. It is my opinion that a presentation of this information will decrease anxiety and increase achievement in any school.

The irritation and anger that affect the achievement levels exhibited in a school are not limited to relationships between teachers and students, and teachers and administration. The individual relationships between all individuals in a school affect the success of that school. Relationships in families at home can cause individuals to be less productive at school. Even though the results of anxiety and anger are costly to all the individuals in a school, remember, there is no fault or blame involved in this problem. It is mainly caused by a lack of information. When the information is presented, it is not a cure all, but a tool that helps remove stress and anxiety, and increase achievement.

The ability to change the differing levels of stress and anxiety was quite apparent in the results of the in-class research (Beamish, 1993). Working with 7th and 8th grade students, it was decided to attempt to change the building-wide behavior and achievement levels of eighty-eight 7th grade science students. These students would be the test group and the other eighty-seven 7th grade students, who did not have science that semester, would be the control group. The students in the test group were tested for hemisphere usage preference and instructed in the areas of brain structure, function, and downshifting, to try to achieve the following goals:

1. Students will have an understanding of their own and other peoples' varying hemisphere usage preferences, and how these differing preferences affect feelings, thinking, and basic human interactions.
2. Students will understand how the brain functions and how to control downshifting.
3. Develop in the students the concept of ownership of their brain and an understanding of the importance of developing their mind for their future, no matter what hemisphere preference caused philosophies and/or behaviors are maintained by their teachers, parents, and peers.

After spending three 55-minute periods working on the above goals, the students were expected to raise their grade point levels, and decrease the number of discipline reports they received throughout the building during the first semester.

Figure 4 shows the amount of difference between the average grade point of each student for the last quarter of the previous school year, compared to the grade point average for the first quarter of their present school year.

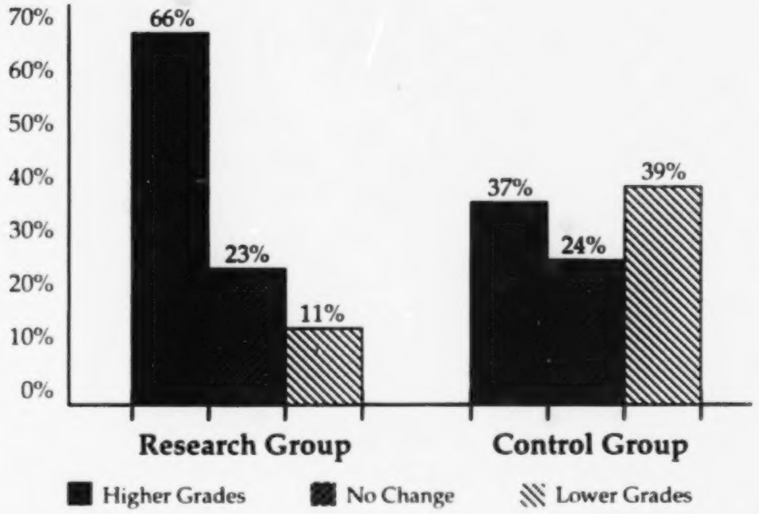

Figure 4. Research results.

The results were encouraging in both increased achievement, and with large numbers of students whose behavior improved building wide. This research was repeated the following three years and the students in the test group always had improved grades and behavior. Consider the possibilities. We could increase student and teacher self-esteem, and achievement levels. We could decrease discipline problems and drop-out rates, all by giving educators, students, and parents enough information on how the brain functions, so they can take ownership, control, and responsibility for their role in the educational system. The road to success is to empower both the student and the teacher with a new freedom of choice through increased information and awareness. But, how do we determine true success or high achievement for any one individual?

Carl Jung (1938) spoke of individuation, the process of individuals developing themselves to their fullest potential. This means each individual, no matter how different from others, achieves his/her greatest potential. Looking at all of the occupations that exist, we can see the need for all of our diverse abilities. With such diversity, to decide whether individuation occurs, we must first define or determine what would be the fullest potential for any one individual. Howard Gardner (1983) speaks to a natural diversity when he lists the following seven types of intelligence:

1. Linguistic Intelligence
2. Logical-Mathematical Intelligence
3. Musical Intelligence
4. Spatial Intelligence
5. Bodily-Kinesthetic Intelligence
6. Intra-Personal Intelligence (Examination and knowledge of our own feelings)
7. Inter-Personal Intelligence (Looks outward toward behavior, feelings, and motivation with others)

If we look at all of the activities or occupations that humans must master in order to succeed in this world, it should not be surprising that different individuals will have differing natural levels of ability for each of the seven different types of intelligence. If all humans were given the same exact abilities, we would all be competing for the same job or occupation. The diversity of "brain-caused-abilities" needed to succeed in all of the occupations that exist in our society is staggering. To support the concept of individuation, educators need to support, value, and nurture the unique combinations of special abilities or intelligences of each "differing" individual student.

By valuing any two or three of the seven forms of intelligence more than the other four forms of intelligence, you can create a situation where large numbers of students will be found lacking in ability. This will lead to downshifting, the special brain protective method that occurs during periods of stress or anxiety. Remember, downshifting switches blood flow and usage area down in the brain to a faster-acting portion of the brain called the limbic system. When downshifting occurs, long and short term memory are turned off and the natural brain abilities of compassion, empathy, problem solving, cause and effect reality, flexibility, and creativity are all extremely limited. Any students, who are found lacking the needed forms of intelligence upon which a school evaluates its students, will usually downshift. The loss of long and short term memory during these stressful periods of failure or inadequacy increases the rate of failure. The loss of empathy, cause and effect reality, and flexibility set many of these students up for behavioral problems. Now the student not only lacks a needed ability but also lacks long and short term memory and may have many discipline problems. This situation decreases achievement which increases downshifting and negative behavior, which in turn again decreases achievement and increases downshifting and negative behavior. A self-feeding negative spiral is created that is fed by failure and punishment.

It is tragic that this entire negative situation is created by an educational system that has decided to select just a few forms of intelligence as a basis for the evaluation of total intelligence. Since close to 80% of the general population has a greater left hemisphere dominance, it is not surprising that the left hemisphere linguistics and mathematical intelligences form the basis for the majority of most school evaluations of intelligence. When all students are measured by the left hemisphere subjects of language and math logic, it should be expected that the more right hemisphere dominant students will be pushed toward downshifting and decreased achievement. In severe cases it can end in a self-feeding negative spiral leading to the student dropping out of school. Downshifting from lack of success or ability is the largest roadblock to achieving individuation. It is sad that the naturally needed diversity of human ability, that is so needed by the entire society, can be overlooked by the majority. It is also sad that this diversity can be used against those lacking a school's chosen "needed" behaviors and abilities.

In order for all individuals to reach full individuation, an educational climate must be created that recognizes the value of all forms of intelligence. Simultaneously, each individual must be supported and nourished as he/she continues the development of his/her brain, moving toward full individuation. This means each individual, no matter how different from others, will attain his or her greatest potential.

Because of the varying differences between students, teaching to allow all students to reach greater levels of individuation takes some very special measures. Many of these needed techniques will be in opposition to many teachers', parents', and administrators' belief systems. The teaching for individuation process is a process of adapting to or minimizing the effects of the individual student's deficits.

Downshifting

It is important to realize that anger, anxiety, and lack of success can all cause downshifting. Downshifting is a protective function in the human brain, where the brain shifts blood flow and usage area down into the limbic system. When students downshift and use the limbic system, long and short term memory plus complex thinking and problem solving are severely limited. Because of this loss of long and short term memory, complex thinking, and problem solving, the student's learning rate can decrease to as little as 10% of normal. To the contrary, in a warm, caring, exciting, successful classroom environment, students have full use of their upper brain, the neo-cortex. More important is that in this warm, caring, exciting, successful classroom environment the students' brains can secrete special neurotransmitters. These special neurotransmitters can increase learning rates up to 400% of normal. Consider the possibilities your students, in a positive, enjoyable, classroom environment, could learn at a rate 40 times faster than those students in negative environments.

All of the following concepts are addressed with the idea of avoiding downshifting in specific groups of students. It is extremely important that all students stay in their upper brain. The following concepts do not have to be addressed and probably will not be in many schools or classrooms. They will only be addressed if we decide that the outcome of our educational system is more important than our own varied beliefs of how the system should operate. The choice is an individual choice. Now let's look at the rest of the parts of the teaching for individuation process.

Teaching the Students about the Brain

Students should be given sufficient knowledge about their own brain and how it determines personality and aptitudes so that they can gain greater self-esteem and control over downshifting. To do this, the students should be tested for hemisphere usage preferences and instructed in the areas of brain structure, function, and downshifting. Remember, using this process we are trying to achieve the following goals:

1. Students will have an understanding of their own and other peoples' varying hemisphere usage preferences and how these differing preferences affect feelings, thinking, and basic human interactions.
2. Students will understand how their brain functions and how to control downshifting.
3. Develop in the students the concept of ownership of their brain. This includes an understanding of the importance of developing their own mind for their future, no matter what hemisphere preference-caused philosophies and/or behaviors are maintained by their teachers, parents, and peers.

The presentation of this material usually takes about three hours of class time. It is one of the most important parts of the teaching for individuation process. The earlier students can be exposed to this material, the easier it will be for them to learn. If the material is presented at the elementary level, it should be repeated or reinforced every two or three years. It also helps to have signs placed around the school reminding students of their responsibility to develop their own brain. The signs can say such things as: "Dendrite Power," "Downshifting decreases memory," "Are you developing dendrites today?," "Individuation: Becoming the best you can be," etc. The key to this part of the process is the validation of all individuals in the school, and then working to increase achievement and self-esteem.

Explaining the Whole Picture Before Starting a Unit

Before the introduction of new materials, the whole picture or the overall view of what is to be covered needs to be presented so that right hemisphere dominant students can be comfortable. After this, the individual pieces of the concept or idea need to be presented for both the left and right hemisphere dominant students.

Adapting for the Low Reader

If students have low reading levels, this deficit should be worked on in only one class. In all other classes all materials that are needed, including all tests and quizzes, need to be read to the these students. This allows the non- or low-reading students to be more successful. This success in other classes will upshift these students, allowing them to be more successful in their reading class. I remember running into one of my former students while I was out cutting firewood. He was a logger. He said, "Do you realize that I could never concentrate in your class because I was always afraid you would ask me to stand and read something out loud?" I said, "But, I never asked anyone to read anything." He said, "But, I didn't know that." For students who have reading problems, just the anxiety from not knowing what to expect from a teacher can cause them to downshift and lose their ability to learn. These students should always be told about a teacher's expectations or lack of expectations.

Outlining and Organizing for the Right Hemisphere Dominant Student

Most of the right hemisphere dominant students and the process-oriented left hemisphere dominant students lack organizational and outlining skills. For these students, all test materials and other needed materials should be outlined on the chalkboard or copied and handed out on paper. Students should always know which materials they will be tested on. When testing, having each individual student guess what material to study only sets up those students with less insight for failure. Students also need to be taught to make lists to keep track of their work. At some stage in the educational system these students should be given weekly and monthly calendars. If we teach students how to use lists and calendars and monitor their use, the students should gain more left hemisphere skills. These increased left hemisphere skills will allow the students to be more successful, thus preventing downshifting.

Auditory, Visual, & Kinesthetic Plus Right and Left Hemisphere Teaching

All course materials need to be covered in at least three different modes: auditory, visual, and kinesthetic. This will allow all the students access to the material with their own method of perception. All materials also need to be presented in both a left and a right hemisphere mode. Many students who cannot learn in a left hemisphere mode will learn very easily in a right hemisphere mode.

High Positive Expectations and Guaranteeing Success

One of the most crucial points of this classroom technique is "high positive expectations." The most important concept is that every student can learn. A teacher should truly believe that all students can learn and should continually express this belief to the students. Throughout each unit, teachers need to monitor the students' progress with quizzes that do not affect the students' grades. This will allow the teacher to give tests only when the teacher is sure that all students will be successful. If a student fails to study for a test or forgets the quiz material, it should be given over without penalty until the student is successful. Success breeds success. Once students learn that they can learn and that the teacher will not accept anything else, learning becomes the norm and much easier.

Handling Discipline

Handling discipline will take a major mental shift. To perform this shift, teachers will need more information on how brain usage patterns create personalities. Included in this new knowledge will be information on the common reasons for student downshifting plus how to keep students in their upper brains. Teachers will need the results of two very important student tests. The two tests that students should complete are the Brain Hemisphere Usage Sorter and the Auditory, Visual, and Kinesthetic Sorter. The best place for displaying this information is on the class seating chart. This allows a teacher immediate access at a glance. With this new information, teachers will be able to manage their classrooms with a new insight. Remember, the major key to learning is still to avoid downshifting.

Classroom Setup

Because of the dominant left hemisphere thinker's drive for fairness and the dominant right hemisphere feeler's need for caring, the rules or setup of a classroom become very important. As far as seating goes, I have found that if students are allowed to choose their own seats, it adds to the student's enjoyment of the class. This will increase the learning rate. As long as a student shows courtesy in doing so, students should be allowed to get up at anytime to sharpen their pencil. If students are hungry, they should be allowed to eat part of their lunch or other food, if they do not make a mess or disrupt the class. While the teacher is presenting material all students should be quiet and attentive. If the students are not quiet and attentive, the teacher should stop teaching. When the teacher is not presenting, students should have the freedom to talk or move around, in order to further study or work on the material. For those students who master the material early, quiet enjoyable activities should be provided. There should be no restrictions on the use of the bathroom. The quickest way to lose your ability to concentrate or learn is to be unable to go to the bathroom when needed. The basic idea is that whatever needs or freedoms a teacher might enjoy, also should be granted to the students.

Grading

When we look at grading we find two major problems. First is deciding on what basis we will determine a student's grade. If we grade on a student's process of learning, we will usually discriminate against those students who do not follow an individual teacher's expected process. If our purpose is to have students learn, then the only thing that should be graded is the final test results. Assignments late or early, complete or incomplete, quizzes successful or unsuccessful should not be used as a basis for grading. These parts of the learning process need to be monitored, finished, and of as high a quality as the student is capable. But, the actual grade should be determined only by results of the final tests.

The second problem that we encounter is that if we change our teaching methods so that all students can learn all the material we teach in a specific unit, they all should score above 92% on the final test. If scoring 92% and above on a test is considered to be an A, what happens when all students start getting A's? What happens to the grading system? What will the parents say? The interesting thing about this increase in student success is that the yearly state testing scores also rise. Using this method to teach science over a period of many years, we could maintain high state testing scores. If the process could be used building-wide, the learning rate should drastically increase. But, the grading system of A, B, C, D, F has been around forever. What are we going to do if all the students become successful? This indeed will be a major hurdle to the process of individuation.

How Do We Handle Students Who Naturally Lack Certain Skills?

Now we come to an even bigger problem. If we choose to teach so that all students reach their own greatest potential, what about students who lack certain natural brain aptitudes? It seems as we view the results of comparing brain usage patterns to occupations chosen by individuals of specific brain usage patterns, we find that each occupation requires certain talents or abilities. If students have a deficit in math, when do we stop penalizing the same students year after year? If a student has a deficit in language skills, how many years do we keep trying to get these students to accomplish things they have a low ability to do? Not all individuals will need higher math skills or higher language skills. But, how do we know when enough is enough? Possibly, it will be easier for these students to work in their weaker areas of study once they are more successful in other classes.

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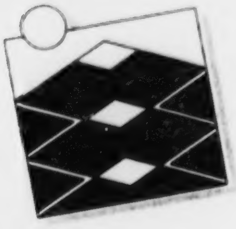
Section II



SOCIAL BEHAVIOR ISSUES

Juvenile Delinquency: Is Crime Actually on the Rise?

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The purpose of this paper is to report the results of an investigation of U.S. crime rates. While it may be true that arrest rates for violent offenses is rising, it may not be true that criminal acts committed by juveniles is increasing. The following discussion offers a presentation of (a) national arrest rates for juvenile offenders listed by the FBI and other federal sources, (b) national adjudication rates for juvenile offenders listed by the FBI and other federal sources, and (c) known crimes committed in Eugene from 1984-1991. A discussion focuses on the pitfalls associated with incorrect presentations of the problem and the need to improve objective analysis, interpretation and presentation of the problem and its solution.

DURING THE PAST DECADE, "RISING CRIME" HAS BECOME A BUZZ PHRASE IN THIS COUNTRY AND our community. On any day and in most newspapers, the phrase is likely to be printed at least once. In addition, television newscasts report a new crime almost every night. Based on these common portrayals, we are led to believe that crime is on the rise. Because crimes committed by youth are commonly presented, we also might assume that youth are the cause of rising crime rates. Gangs and violence are reported to be overwhelming our schools and communities throughout the country. This depiction of increasing crime rates, however, may be an inaccurate representation of the actual crime reports provided by federal agencies.

The purpose of this paper is to (a) demonstrate that national arrest rates for juvenile crime have not risen over the last decade, (b) describe what happens to adjudicated juveniles, and (c) suggest that crime is not on the rise in Eugene, Oregon. Three main information sources were

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used to study juvenile crimes rates: (a) *FBI: Uniform Crime Reports* (U.S. Department of Justice, 1993), (b) *Sourcebook of Criminal Justice Statistics* (Maguire & Pastore, 1994), and (c) *Statistical Abstract of the United States* (U.S. Department of Commerce, 1994). Results from an analysis of this information are presented in graphic form to show the extent to which "rising crime" may be a false interpretation of the problem.

The results are presented in three major sections: (a) juvenile arrests, (b) juvenile adjudication, and (c) crime in Eugene. The next section involves a discussion of the findings and limitations of this investigation. Finally, conclusions and suggestions are presented relative to the community problem of assessing and solving juvenile crime.

Results

To examine the extent to which juvenile crime rates, in fact, are rising, data from three sources were collected and analyzed: *FBI: Uniform Crime Reports*, (b) *Sourcebook of Criminal Justice Statistics*, and (c) *Statistical Abstract of the United States*. The *FBI: Uniform Crime Reports* is an annually published report on criminal statistics put on by the Federal Bureau of Investigation, U.S. Department of Justice. The data are collected on an ongoing basis by "over 16,000 city, county, and state law enforcement agencies" (*FBI: Uniform Crime Reports*, 1992, p. 1). Ninety-five percent of the total U.S. population is covered by this cooperative, nationwide, statistical effort. Data collection procedures, definitions, and policies were developed by the FBI and several advisory groups. These procedures, definitions, and policies are standardized and published in a set of handbooks that are used by the data collectors. A complete list of the *FBI: Uniform Crime Reports* definitions of the crimes presented in this paper is presented in Appendix A.

The *Sourcebook of Criminal Justice Statistics* is an annual publication put out by the U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. Again, the sources that contribute to the data collection are numerous. A description of each of the sources is listed in annotations proceeding the appendixes of the *Sourcebook of Criminal Justice Statistics*. Because there is no standardized handbook on data collection procedures for the *Sourcebook of Criminal Justice Statistics*, the readers of this resource are cautioned by the editors to check the definitions and data collection time tables that are presented either with the table or in an appendix. Therefore, to standardize this presentation, the only crimes presented are those that meet the definitions listed in Appendix A of this paper from the *FBI: Uniform Crime Reports*.

The *Statistical Abstract of the United States* is an annual publication put out by the U.S. Department of Commerce, U.S. Bureau of the Census. Data is collected from multiple sources, however, the sources are not listed in the publication. While the U.S. Bureau of the Census "cannot accept the responsibility for the accuracy or limitations of the data" (p. vi), they do accept responsibility for the material being properly presented. Because only a limited number of statistics from this resource are presented here, it is not likely that the limitations of this resource will effect the validity or reliability of this presentation.

Visual displays of selected databases are presented to illustrate specific data relationships.

Juvenile Arrests

For the purpose of this study, a juvenile is defined as any person under the age of 18 years old; and an arrest is defined as (a) being accused by law enforcement officials of a crime and (b) being read your legal rights by those law enforcement officials. Again, the definitions of the crimes listed in this, and subsequent sections of this paper, are listed in Appendix A.

In Figure 1, two graphs are used to illustrate the number of juvenile arrests in the United States from 1980 until 1992 according to the *FBI: Uniform Crime Reports.* The top graph indicates that the number of arrests was 2,025,713 in 1980, 1,804,688 in 1982, 1,537,688 in 1984, 1,747,675 in 1986, 1,634,790 in 1988, 1,754,542 in 1990, and 1,943,138 in 1992. The information displayed in the bottom graph indicates that the total number of juvenile arrests was 2,025,713 and fell to 1,943,138 by 1992.

The number and percent of arrests by age according to the *FBI: Uniform Crime Reports* are displayed in Figure 2. In the top graph, 689,877 persons under the age of 15 were arrested in 1992; 1,943,138 persons under the age of 18 were arrested; and 9,950,015 person over the age of 18 were arrested. Data displays in the middle graph indicates that, in 1992, 41,007 persons under age 10 were arrested, 168,338 person between the age of 10 and 12 years were arrested, 480,532 between the age of 13 and 14 years were arrested, 367,736 persons age 15 years were arrested, 426,086 persons age 16 years were arrested, 459,439 persons

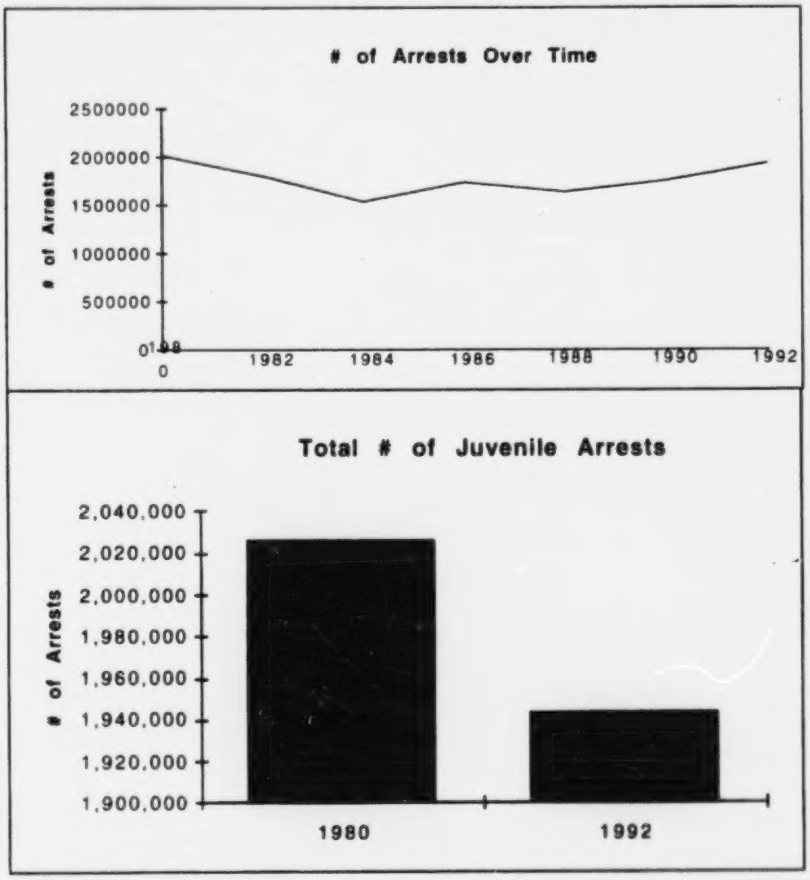


Figure 1. Number of juvenille arrests (source: FBI: Uniform Crime Reports, 1980-1992).

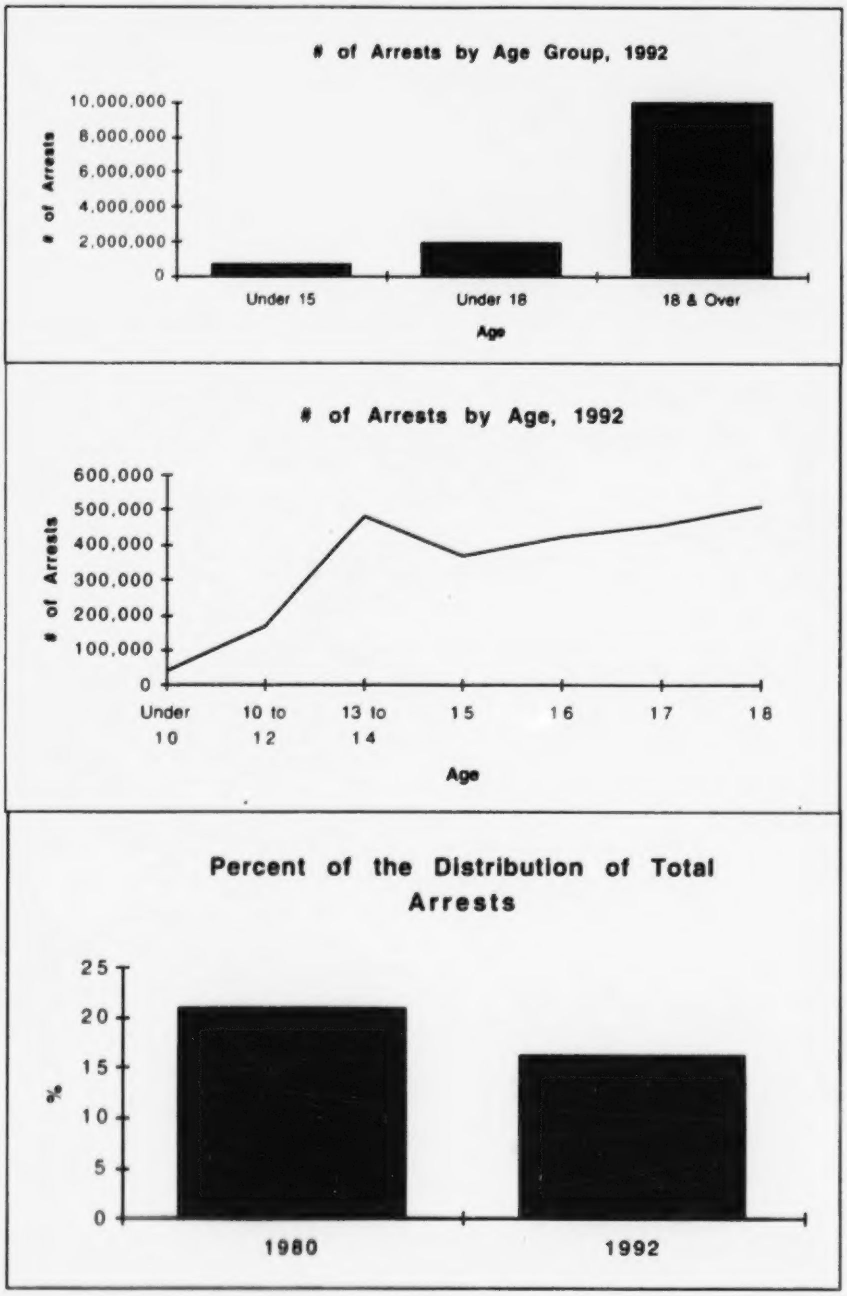


Figure 2. Age of arrests (source: FBI: Uniform Crime Reports, 1980-1992).

age 17 years were arrested, and 510,727 persons age 18 years were arrested. In the bottom graph, the percent of juvenile arrests out of the total number of arrests in 1980 was 20.9% and 16.3% in 1992.

The type of juvenile arrests according to the *FBI: Uniform Crime Reports* is shown in Figure 3. Arrest frequencies for specific crimes over time are shown in the top graph. Arrests for murder and aggravated assault increased from

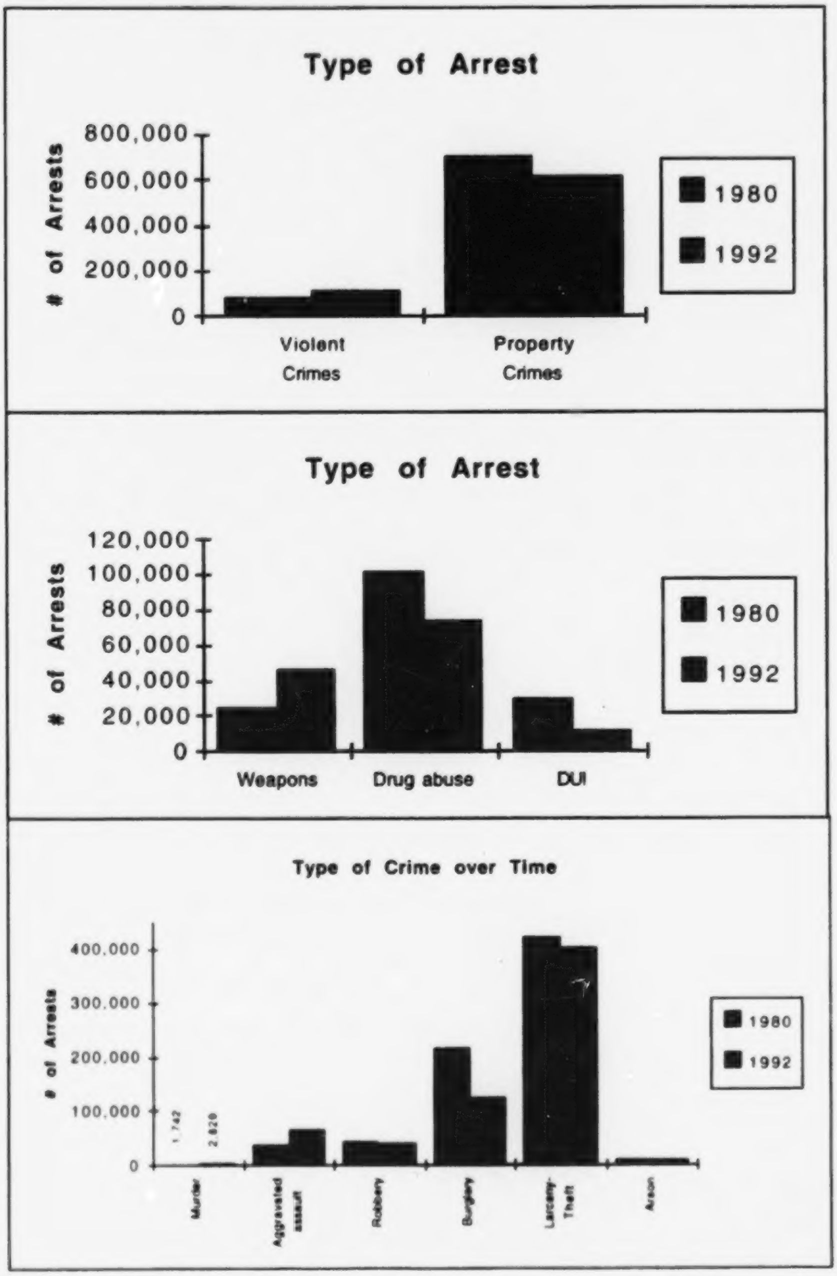


Figure 3. Type of juvenille arrests (source: FBI: Uniform Crime Report, 1980-1992).

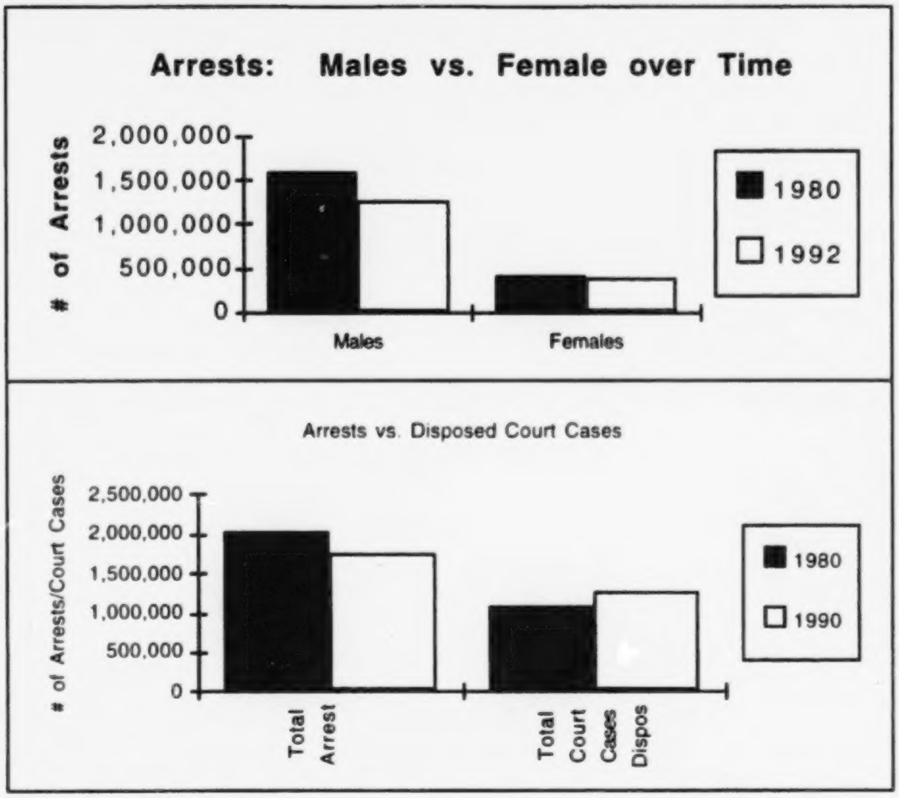


Figure 4. Discrepancies (source: FBI: Uniform Crime Reports, 1980-1992).

1980 to 1992: (a) murder increased from 1,742 in 1980 to 2,829 in 1992, and (b) aggravated assault increased from 38,135 to 63,777. Arrests for all other index crimes decreased. From 1980 to 1992, robbery decreased from 41,997 to 40,434, burglary decreased from 215,387 to 122,567, larceny decreased from 421,082 to 402,066, and arson decreased from 8,161 to 7,968. While arrests for violent crimes increased slightly from 86,220 in 1980 to 112,409 in 1992 (middle graphs), arrests for property crimes decreased from 703,428 to 608,401. Data displays from 1980 to 1993 shown in the bottom graph show that while arrests for weapons increased from 23,990 to 46,256, arrests for drug abuse decreased from 100,688 to 73,981, and arrests for driving under the influence decreased from 29,957 to 11,956.

Finally, in Figure 4, two discrepancies appear in the arrest data according to the *FBI: Uniform Crime Reports* and the *Statistical Abstracts of the United States.* First, while the number of arrests of male juveniles decreased 20% from 1980 to 1992, the number of female arrests only decreased 5% during that same period. Second, while the total number of arrests decreased from 2,125,713 in 1980 to 1,754,542 in 1992, the total number of court cases disposed increased from 1,093,000 to 1,265,000.

Juvenile Adjudication

Juvenile adjudication is defined here as criminal cases committed by persons under the age of 18 years old that have been tried in court.

The reason for and number of referrals for adjudicated juveniles in 1990 are shown in Figure 5. Referrals are defined here as a formal request by some agency that a juvenile be placed in the custody of a custodial institution. Custody is defined as placed in a public or private facility under the care of the city, county, state, or private agency by removing the juvenile from the home and into some other residence (e.g., foster home, juvenile hall, state institution, etc.). Based on data found in the *Statistical Abstract of the United States* (1992), approximately 3,000 juveniles were adjudicated for homicide, 4,000 for rape, 29,000 for robbery, 60,000 for assault, 141,000 for burglary, 318,000 for larceny, 69,000 for motor vehicle theft, 7,000 for arson, 120,000 for simple assault, 92,000 for vandalism, 68,000 for drugs, 83,000 for obstruction of justice, and 272 for other crimes.

The number of juveniles held in custody according to the *Sourcebook of Criminal Justice Statistics* is shown in Figure 6. The first graph indicates that the number of juveniles held in public facilities in the U.S. in 1979 was 43,234 and 57,542 in 1991. The second graph indicates that the number of juveniles held in public facilities in Oregon was 825 in 1979 and 723 in 1991. The third graph indicates that the custody rate (per 100,000) of juveniles in public and private facilities was 259 in the U.S. and 326 in Oregon.

The cost of custody according to the *Sourcebook of Criminal Justice Statistics* is illustrated in Figure 7. The cost of custody for juvenile delinquents was 1.25 billion dollars in 1985, 1.47 billion dollars in 1987, and 1.67 billion dollars in 1989.

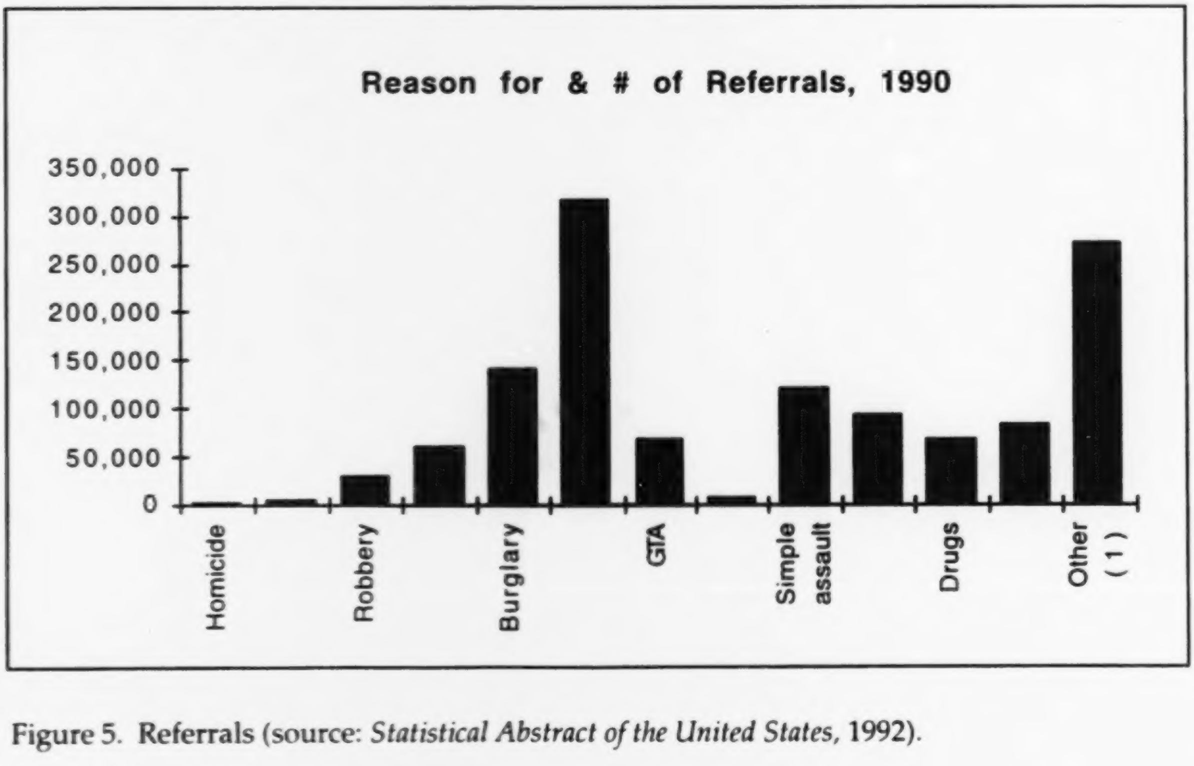


Figure 5. Referrals (source: *Statistical Abstract of the United States*, 1992).

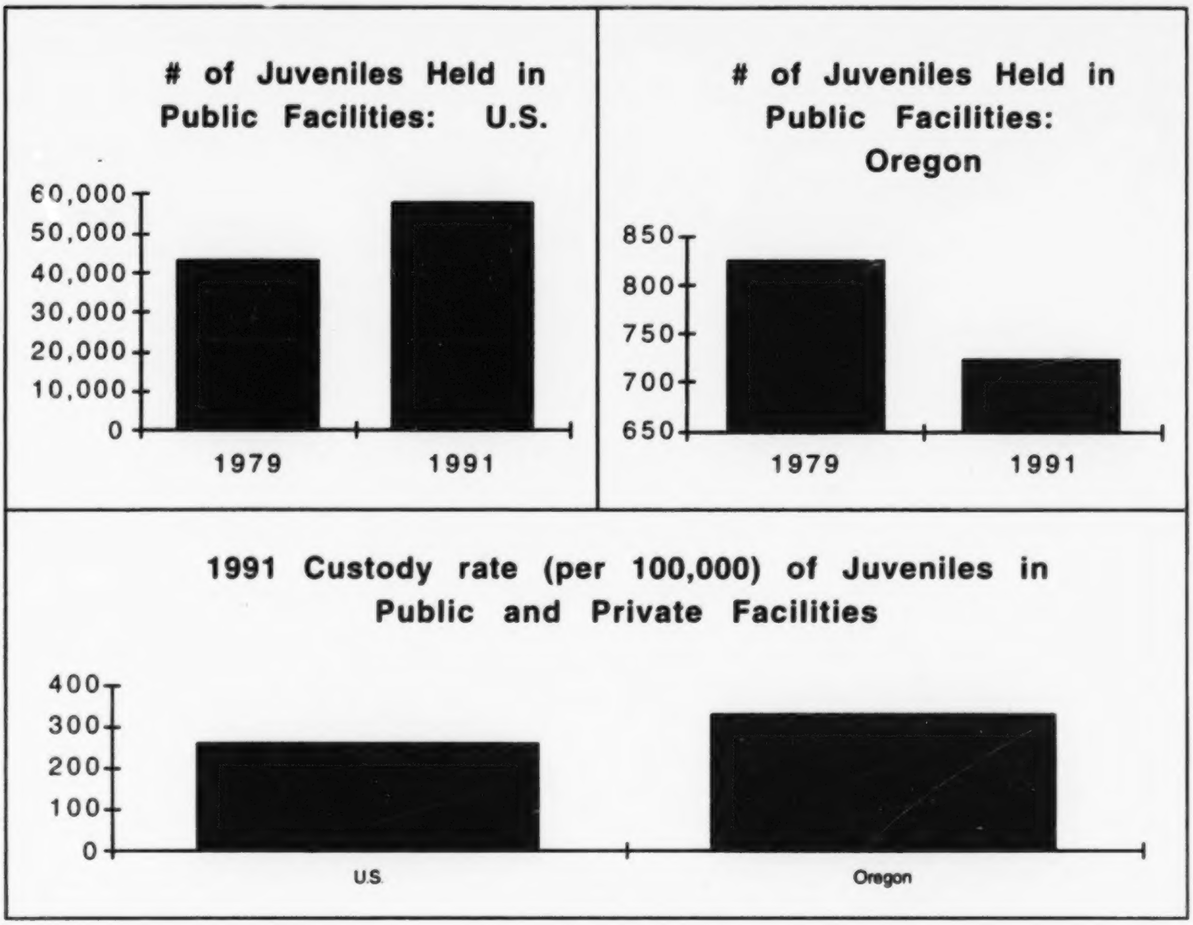


Figure 6. Juvenilles in custody (source: *Sourcebook of Criminal Justice Statistics*, 1992).

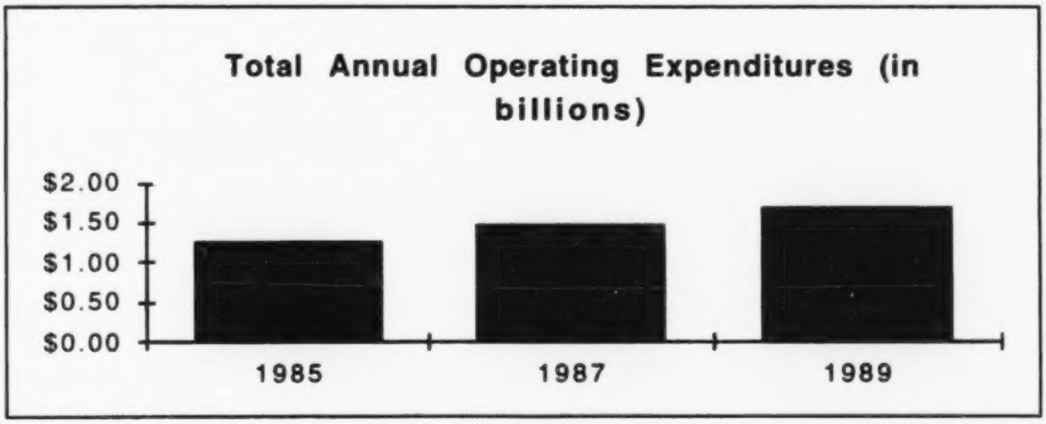


Figure 7. Cost of custody (source: *Sourcebook of Criminal Justice Statistics*, 1992).

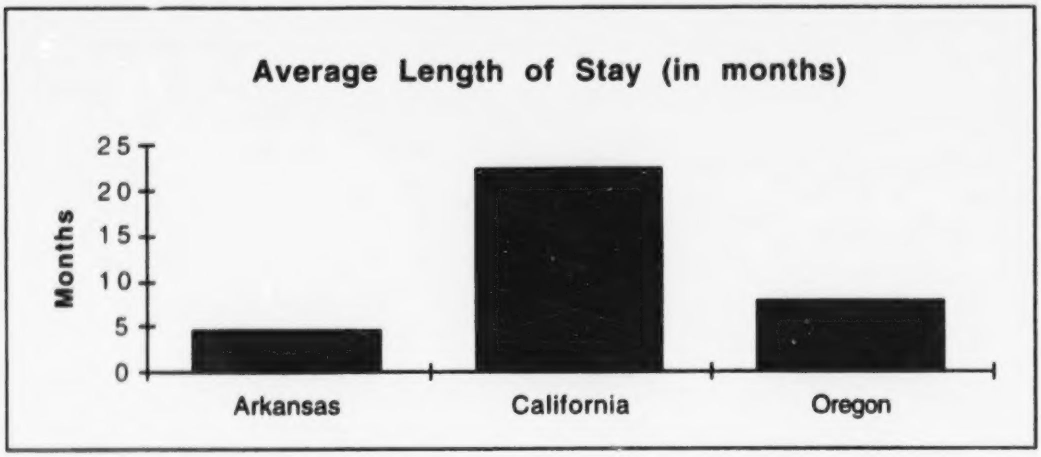


Figure 8. Time served (source: *Sourcebook of Criminal Justice Statistics*, 1992).

In 1992 the average length of stay in three states according to the *Sourcebook of Criminal Justice Statistics* was 4.5 months in Arkansas, 22.3 months in California, and 7.7 months in Oregon (See Figure 8).

Crime in Eugene

Figure 9 provides a display of the population growth for Eugene from 1984 to 1991 according to the *FBI: Uniform Crime Reports*. While the population decreased from 103,734 in 1984 to 102,077 in 1985, it increased each of the following years from 102,502 in 1986 to 106,430 in 1987, 106,684 in 1988, 110,119 in 1989, 112,669 in 1990, and 115,827 in 1991. This graph is presented for two reasons: (a) to give a visual display of the rising slope and (b) to serve as a basis for controlling for the influence of population growth when looking at the Eugene's crime statistics.

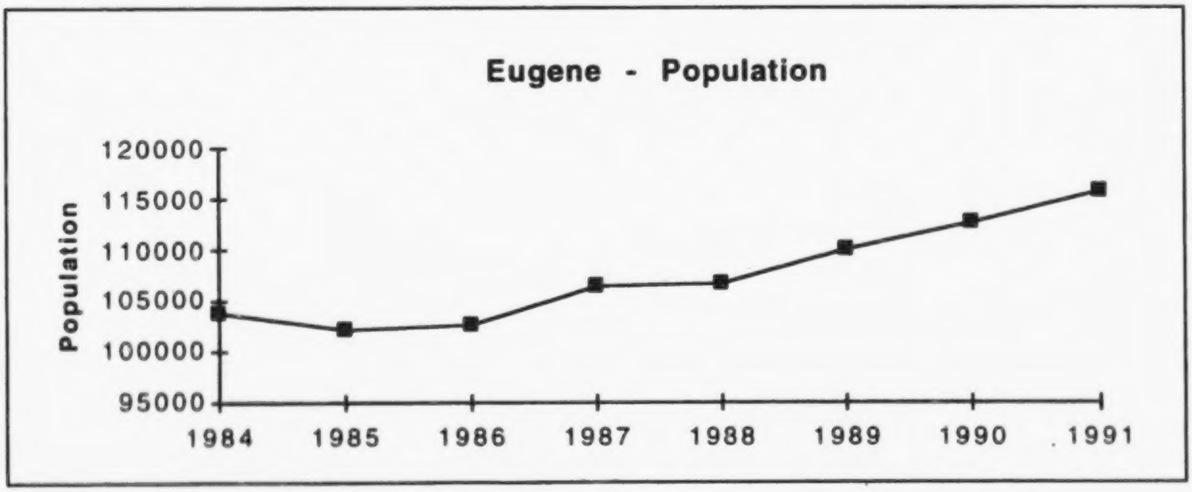


Figure 9. Eugene population (source: *FBI: Uniform Crime Reports*, 1980-1992).

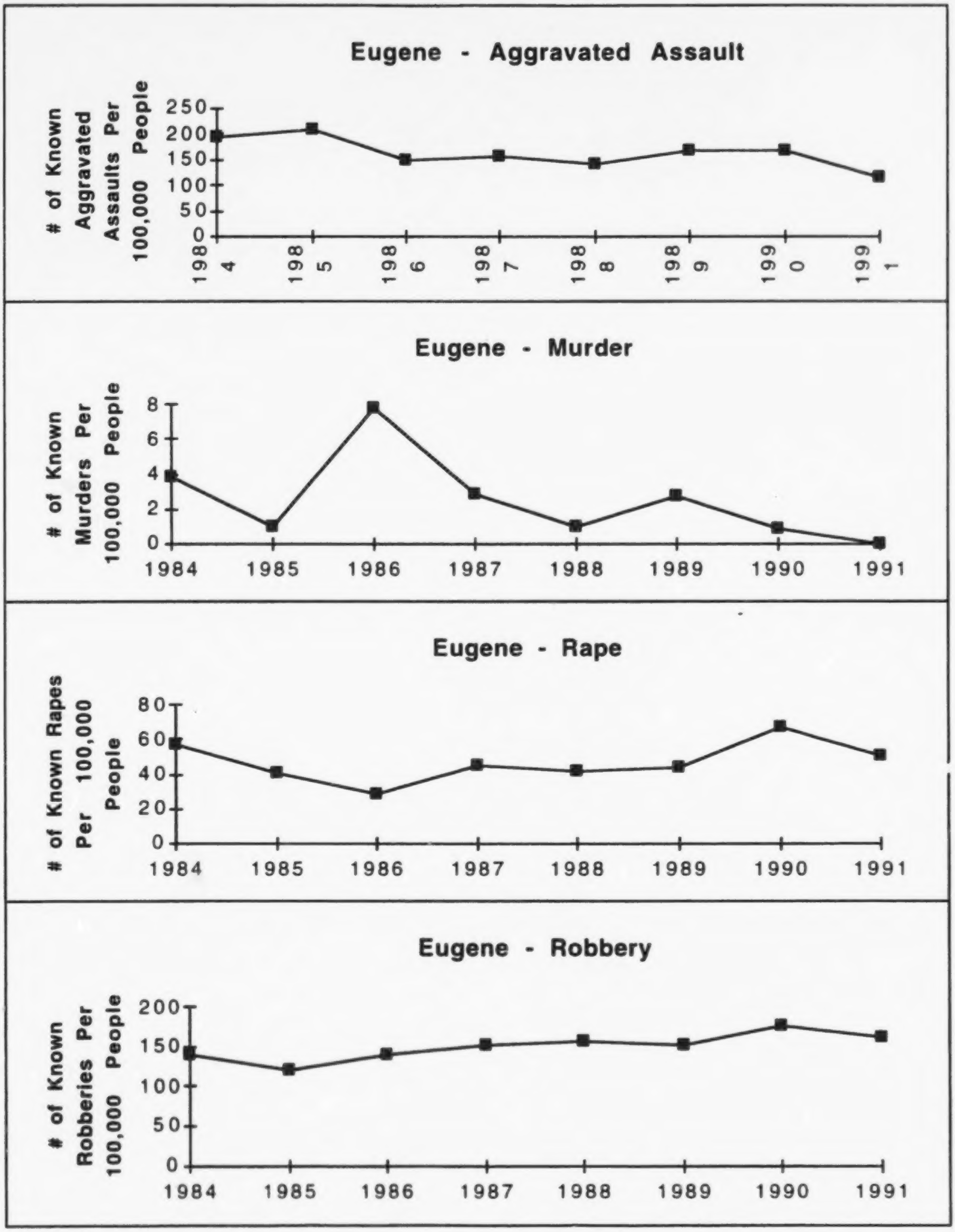


Figure 10. Violent crime in Eugene (OR) (source: *FBI: Uniform Crime Reports*, 1980-1992).

Based on the *FBI: Uniform Crime Reports*, known violent crime rates in Eugene (per 100,000 people) from 1984 to 1991 are displayed in four graphs shown in Figure 10. In the first, the number of known aggravated assaults in Eugene are indicated: 194 in 1984, 209 in 1985. 149 in 1986, 155 in 1987, 140 in 1988. 167 in 1989, 168 in 1990, and 116 in 1991. In the second, the number of known murders in Eugene are shown: 4 in 1984, 1 in 1985, 8 in 1986, 3 in 1987, 1 in 1988, 3 in 1989, 1 in 1990, and 0 in 1991. In the third, the number of known rapes in Eugene are indicated: 57 in 1984, 40 in 1985, 28 in 1986, 45 in 1987, 41 in 1988, 43 in 1989, 67 in 1990, and 50 in 1991. In the last graph, the number of known robberies in Eugene are illustrated: 139 in 1984, 120 in 1985, 139 in 1986, 151 in 1987, 156 in 1988, 153 in 1989, 175 in 1990, and 161 in 1991.

The three graphs in Figure 11 illustrate the known property crime rate in Eugene (per 100,000 people) from 1984 to 1991 according to the *FBI: Uniform Crime Reports*. In the first graph, the number of known burglaries in Eugene are shown: 1,884 in 1984, 2,034 in 1985, 2,132 in 1986, 2,310 in 1987, 1,796 in 1988, 1,437 in 1989, 1,358 in 1990, and 1,406 in 1991. In the second graph, the number of known larcenies in Eugene are displayed: 5,857 in 1984, 5,632 in 1985, 5,580 in 1986, 6,610 in 1987, 5,788 in 1988, 6,626 in 1989, 5,879 in 1990, and 5,724 in 1991. In the final graph, the number of known motor vehicle thefts in Eugene are indicated: 291 in 1984, 382 in 1985, 402 in 1986, 514 in 1987, 412 in 1988, 390 in 1989, 363 in 1990, and 357 in 1991.

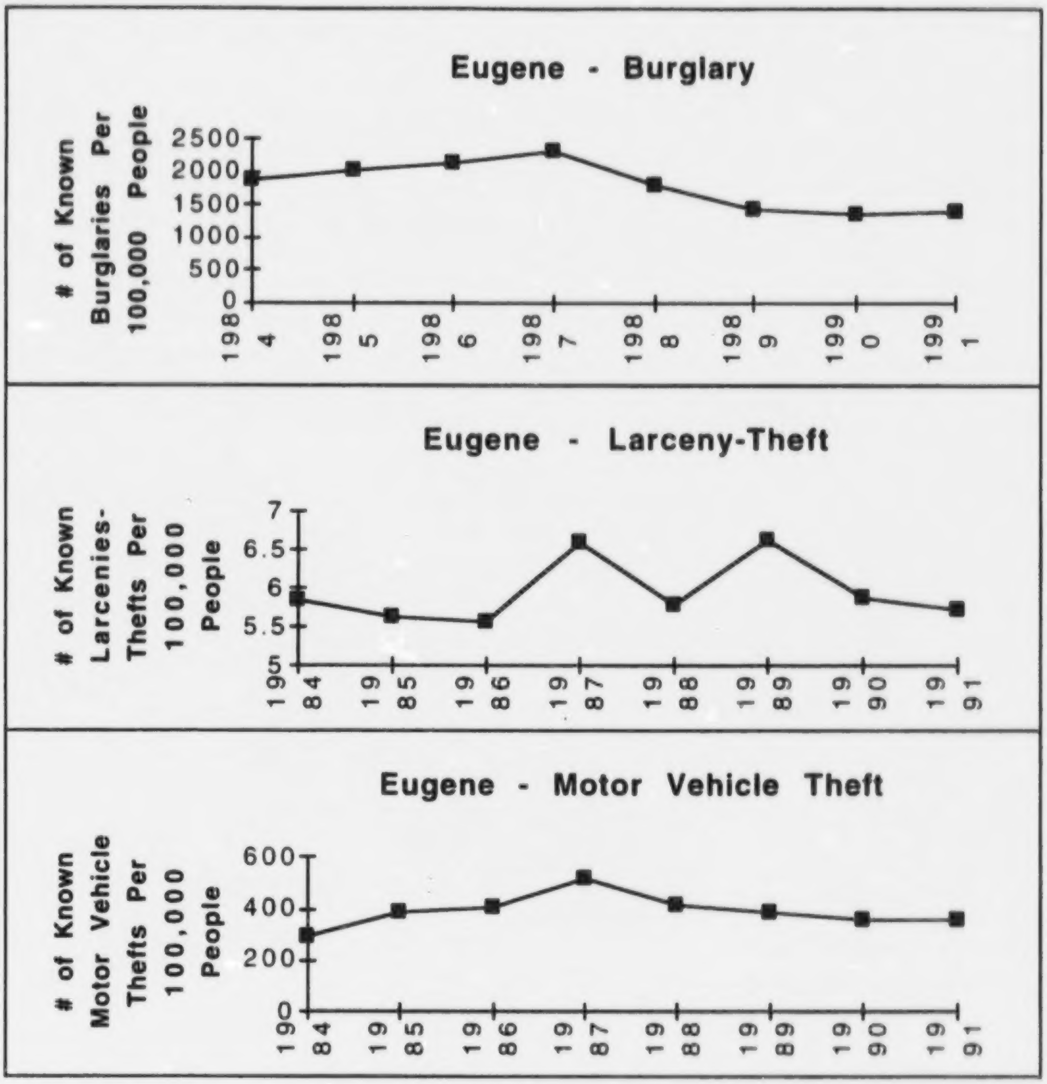
Discussion

The purpose of this paper was to examine juvenile crime information available from three federal sources and determine if the juvenile crime rates are increasing as suggested from reports found in the popular press (e.g., newspapers, magazines, media). In general, the results from an examination of the data compiled by federal sources suggest that juvenile crime rates have not increased significantly over the last ten years, but the nature of those criminal acts has become more violent and lethal. A summary of these conclusions follows.

A basic premise behind the study of the criminal behavior of juveniles is that arrest rates function as a useful indicator of juvenile crime rates. This supposition, however, has its frailties. For instance, an arrest event assumes that (a) all officers apply the same criteria for deciding who they do and do not actually arrest, (b) the apprehended juvenile actually committed the criminal act, (c) a single criminal event occurred, (d) arrests are a reliable and valid indicator of actual crime rates, and (e) each criminal event has one juvenile offender. All discussions about arrest and criminal rates must keep these consideration in mind.

If we are careful when we assume a relationship between number of juveniles who are arrested and the number of criminal acts committed by juveniles, an analysis of the available data indicates that the number of arrests has not risen in the U.S. over the last decade. As shown in Figure 1, the absolute number of juvenile arrests has decreased by 82,575 from 1980 to 1992. Further, juvenile arrests nationally have not risen significantly from 1980 to 1992.

Keeping the assumed relationship between juvenile arrests and crime in mind, the commonly made statement that juveniles are committing most of the criminal acts in the United States is not supported by the available data. The validity of this statement also must be questioned when considering that the number of arrests for juveniles is far less than the number of arrests for adults. In addition, juvenile arrest rates for some crimes actually fell from 1980 to 1992. Although arrests of juveniles for murder, assault, and weapons increased dramatically from 1980 to 1992, they


Eugene - Burglary

Eugene - Larceny-Theft

Eugene - Motor Vehicle Theft

Figure 11. Property crime in Eugene (OR) (source: *FBI: Uniform Crime Report*, 1980-1992).

only represent a small portion of the total arrests made and are statistically vulnerable to the slightest increases. Between 1980 and 1992 the biggest reduction was in the number of arrests of juveniles for burglary which dropped by 92,820 arrests. In contrast, the largest increase in arrests of juveniles for a violent crime was for assault which elevated by 25,642 arrests. The total increase in the arrests of juveniles for violent crimes was 26,189, while the total decrease in the arrests of juveniles for property crimes was 95,127. Finally, while arrests of juveniles from 1980 to 1992 for weapons increased by about 20,000, arrests of juveniles for drug abuse decreased by the same amount, and arrests of juveniles for drunk driving decreased by more than half. When taken as a whole, arrests of juveniles for violent crimes has increased only slightly from 1980 to 1992; however, arrests of juveniles for property crimes has decreased much more than the increase of arrests of juveniles for violent crimes during the same time period.

Two discrepancies stood out in the arrest reports of juveniles. First, while the number of arrests of juvenile males has decreased by 20% from 1980 to 1992, the number of arrests of juvenile females only decreased by 5%. It could be argued that the arrests rates for both male and female juveniles is decreasing; however, the news is not as good for female juvenile offenders as it is for male juvenile offenders. Second, while the total number of arrests has decreased from 1980 to 1992, the total number of disposed court cases has increased. Any explanation of this discrepancy would be purely speculative, however, it may be an important future consideration.

As predicted, the federal data indicated that the distribution of juvenile arrests by crime is very similar to the distribution of the reasons for juveniles being referred to the courts. The largest percentage of referrals of juveniles to the courts involved property crime, and only a small percentage of the total number of referrals involved violent crimes.

Although a 17% decrease in the total number of arrests of juveniles was reported from 1980 to 1990, the number of juveniles held in custody in the U.S. increased by almost 30% from 1979 to 1991. In contrast, the number of juveniles held in custody in Oregon decreased from 1979 to 1991, and the custody rate of juveniles in Oregon is about 20% higher than the custody rate of juveniles in the U.S. as a whole. In addition, although the arrest rate for juveniles has decreased, the cost of maintaining a juvenile in custody has increased. Explanations for these discrepancies are needed to improve our understanding of juvenile criminal behavior and the responsiveness of the juvenile justice system. For example, one could speculate that cost increases are due to increases in the length of stay because of an increase in the violent nature of the criminal act. Because length of stay seems to vary across states, other factors (e.g., variations in state juvenile laws, size of state, number of large urban cities) may be influential.

Information on juvenile crime and arrest statistics in Eugene were obtained from *FBI: Uniform Crime Reports* because local data were not readily available in the University of Oregon library. Data after 1991 also were not available. These statistics suggest that whether criminal acts were committed by adult or juveniles, crime in the Eugene area from 1984 to 1991 has not risen. For example, unlike the national statistics on juvenile arrests, the number of known violent crimes has decreased: (a) the average number of known murders per year in Eugene decreased from four per year from 1984 to 1987 to one per year from 1988 to 1991, (b) the number of known aggravated assaults decreased from 194 in 1984 to 116 in 1991, and (c) the number of known rapes went from 57 in 1984 to 50 in 1991. The only violent crime to increase from 1984 to 1991 was known robberies which increased from 139 to 161. FBI data indicated that the number of Eugene property crimes also decreased from 1984 to 1991: (a) 1,884 to 1,406 known burglaries and (b) 5,857 to 5,724 known larcenies. Known motor vehicle thefts were the only property crimes that increased in number between 1984 and 1991 (291 to 357).

Conclusions

Few would argue that juvenile criminal behavior is not a problem in our society; however, the popular press provides an inaccurate picture of the nature of the problem. The available data suggest that juvenile crime rates, in general, are not increasing; however, they are becoming more violent and lethal. Society's response to the crime problem must be based on a careful functional assessment of the nature of the problem so objective, effective, efficient, and proactive solutions can be developed and implemented.

To study the question of whether juvenile crime rates are increasing, a retrospective look at federal juvenile crime reports was conducted. The conclusions drawn from this look, however, are premised on two major considerations. First, it was assumed that data on juvenile arrests rates provide an accurate reflection of juvenile criminal behavior. Second, it was assumed that data patterns revealed in the reports from 1984 to 1992 provide an accurate projection of juvenile criminal behavior beyond 1992. Both of these considerations have limitations and must be used as qualifiers for the conclusions drawn in this paper.

Given these considerations, the evidence from multiple sources suggests that juvenile crime rates are stable; however, criminal acts are becoming more violent and lethal. Several other studies have reached similar conclusions. For example, members of the U.S. Congress charged the Office of Technology Assessment (1991) to review the health status of American adolescents. A summary of the major findings from this report that corroborate the findings of this paper is included in Figure 12.

The U.S. Department of Justice (1994) report on criminal victimization in the United States also supports the finding here. This report states that "[s]ince a peak in the early 1980's, the total of crime victimizations has declined. In 1981, the National Crime Survey provided an estimate of over 41.1 million victimizations; by 1992, that number had fallen to about 33.6 million" (p. iii).

Work by Elliott and his colleagues at the Center for the Study and Prevention of Violence at the University of Colorado, Boulder provide further support.

Is the current violence "epidemic" a distortion resulting from excesses in media coverage or does it reflect a real change in the behavior of youth? The evidence suggest the following conclusions about trends in youth violence over the past decade: 1) there is a substantial increase in the violence victimization rates for adolescents, particularly for 12-

> Although current rates of arrest for serious offenses by U.S. adolescents may seem high, there is some evidence that the aggregate arrest rates for serious violent offenses and for serious property offenses committed by U.S. adolescents have declined since the mid-1970s. (p. II-591)
>
> Potentially the most troubling recent trends are increases in arrest rates among U.S. adolescents ages 13 through 18 for the serious violent offenses of murder and nonnegligent manslaughter and for aggravated assault. (p. II-592)
>
> To the extent that arrest rates and adolescents self-reported offending rates reflect adolescent behavior, the increase in rates for simple assault, aggravated assault, and murder and nonnegligent manslaughter could be indicative of a trend among adolescents to increased violent assaults against persons. (p. II-593)
>
> Available data from the National Youth Survey suggest that a large majority of U.S. adolescents commit minor offenses at least once and that a considerable minority of adolescents also commit serious offenses at lease once. A small percentage repeatedly engage in both serious and nonserious acts of delinquency. (p. II-594)

Figure 12. Summary of incidence and prevelance findings from the Office of Technology Assessment's report on adolescent health and delinquency.

15 year olds; 2) there has been a relatively small increase (8-10 percent) in the proportion of adolescents involved in some type of serious violent offending; and 3) there has been a dramatic increase in adolescent homicide rates, beginning in 1988.

In essence, today's youth are more frequently the victims of violence; but about the same proportion of youth are committing serious violent offenses today as in 1980 and their frequency of offending is approximately the same. One important dimension of youth violence has clearly changed. Today's violent acts are more lethal; a larger proportion of these acts result in serious injury or death. (Elliott, 1994, p. 1)

This paper represents an attempt to bring greater objectivity to the current portrayal of juvenile crime, and to suggest at the same time that the seriousness and importance of the problem in American society should not be downplayed. Greater objectivity is needed to improve our ability to respond in a proactive and effective manner to the problem. Public exaggerations of the problem increases the focus on "getting tough" and increases movements to build more prisons, increase the severity of punishments, and decrease efforts at rehabilitation. The functional effect of such a response is a potential increase in the very problem for which solutions were being developed. For example, Elliott (1994) questions the effectiveness of waiving juveniles to adult court because research indicates that this policy has resulted in "1) longer processing time and longer pre-trial detention, 2) higher conviction rates and longer sentences, 3) disproportionate use of waivers for minority youth, and 4) a substantial lower probability of treatment while in custody" (p. 7). In this example, getting tough became a policy response to warnings of increased juvenile crime, and has produced counterproductive outcomes.

To conclude, we suggest that educators, policy makers, administrators, researchers, and other persons involved in improving the outcomes for troubled youth strive to increase the objectivity of their reporting and to assist in the improvement of the general public's knowledge and perception of the problem of juvenile crime. Alarms are useful for they gain one's attention. However, if not handled objectively, alarms also occasion reactions that have the potential for escalating the problem and having long-term negative consequences. The message in this paper is that juvenile crime is a problem, but let's get the facts straight and develop community solutions that are responsive the nature of the problem and focused on what we know can solve the problem.

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Appendix A

Definition of Crime Categories from the *FBI: Uniform Crime Reports* (1992).

Aggravated Assault. "Aggravated assault is an unlawful attack by one person upon another for the purpose of inflicting severe or aggravated bodily injury. This type of assault is usually accompanied by the use of a weapon or by means likely to produce death or great bodily harm. Attempts are included since it is not necessarily that an injury result when a gun, knife, or other weapon is used which could and probably would result in serious personal injury if the crime were successfully completed" (p. 31).

Burglary. "[T]he unlawful entry of a structure to commit a felony or theft. The use of force to gain entry is not required to classify and offense as burglary. Burglary in this Program is categorized into three subclassifications: forcible entry, unlawful entry where no force is used, and attempted forcible entry" (p. 38).

Forcible Rape. "Forcible rape...is the carnal knowledge of a female forcibly and against her will. Assaults or attempts to commit rape by force or threat of force are also included: however, statutory rape (without force) and other sex offenses are excluded" (p. 23).

Larceny-Theft. "Larceny-Theft is the unlawful taking, carrying, leading, or riding away of property from the possession or constructive possession of another. It includes crimes such as shoplifting, pocket-picking, purse-snatching, thefts from motor vehicles, thefts of motor vehicle parts and accessories, bicycle thefts, etc., in which no use of force, violence, or fraud occurs...[T]his crime category does not include embezzlement, 'con' games, forgery, and worthless checks, Motor vehicle theft is also excluded from this category inasmuch as it is a separate Crime Index offense" (p. 43).

Motor Vehicle Theft. "Defined as the theft or attempted theft of a motor vehicle, this offense category includes the stealing of automobiles, truck, buses, motorcycles, motor scooters, snowmobiles, etc. The definition excludes the taking of a motor vehicle for temporary use by those persons having lawful access" (p. 49).

Murder and Nonnegligent Manslaughter. "[T]he willful killing of one human being by another.

The classification of this offense, as for all other [crimes listed here],...is based solely on police investigation as opposed to the determination of a court, medical examiner, coroner, jury, or other judicial body. Not included in the count for this offense classification are deaths caused by negligence, suicide, or accident; justifiable homicides; and attempts to murder or assaults to murder, which are scored as aggravated assaults" (p. 13).

Property Crime. Property crime includes the offenses of burglary, larceny-theft, motor vehicle theft, and arson. The object of these offenses is the taking of money or property, but there is no force or threat of force against the victims" (p. 35).

Robbery. "Robbery is the taking or attempting to take anything of value from the care, custody, or control of a person or persons by force or threat of force or violence and/or by putting the victim in fear" (p. 26).

Violent Students with Disabilities and School Responsibilities

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Introduction

Increasing violence in schools is a top public concern. The National League of Cities reported that more than 80 percent of 700 communities surveyed said violence is a serious problem in schools; almost 40 percent reported that the problem has increased markedly over the past five years (*The Register Guard*, November 2, 1994). School violence has increased not only quantitatively, but also qualitatively (Harootunian & Apter, 1983). Fist fights and verbal arguments between students have changed to shooting, stabbing, and other serious assaults, and have spread from urban districts to suburbs and small towns.

Because violence has become a serious problem in schools, school officials must handle violent acts occurring in various contexts. While school districts establish disciplinary rules to deal with violent students to maintain schools as orderly learning environments, school officials may not apply the ordinary disciplinary procedures to students with disabilities who engage in violent behavior. School officials and teachers must know their legal responsibilities when carrying out discipline for violent students with disabilities.

Problem Statement

Violent behavior is characterized by aggressive acts (Goldstein & Keller, 1983; Kauffman, 1989). The majority of aggressive behaviors appear in overt forms such as arguing, teasing, threatening, attacking others, possessing weapons, fighting, showing off, bragging, swearing, blaming others, and disobedience. Some aggressive behaviors appear in covert forms such as lying, stealing, setting fire, engaging in gang activities, using drugs and alcohol, and truancy (Kauffman, 1989). Severity of aggression is measured by whether aggressive behavior is age-inappropriate and persistent for a long period, and how intensively, frequently, and long aggressive behavior occurs in a wide range of social contexts (Kauffman, 1989).

Most students with emotional or behavioral disorders (EBD) obtained such labels because they displayed a wide range of aggressive behaviors, degrees, and in various contexts (Kauffman, 1989; Ruhl & Hughes, 1985). Students with disabilities other than EBD also might display aggressive behavior because of their disabilities. For example, a student with a physical disability who was being teased by peers may display aggressive behavior toward peers. If that is his way of dealing with stress and a feeling of vulnerability (as a psychologist testified), is it appropriate to apply the same disciplinary rules that are used with ordinary students to these students with disabilities? The courts and administrative agencies have taken a clear position that students with disabilities must be protected if a student's misconduct grows out of his disabilities. This position is based on the same principle that prevents us from punishing a blind child who ignores a "stay off area" sign (Bateman & Chard, 1994). Courts and administrative agencies have provided principles and guidance on the application of the Individuals with Disabilities Education Act (IDEA) and Section 504 of the Rehabilitation Act (1973) to deal properly with violent students with disabilities. As a school official or teacher, ignoring legal procedures and misunderstanding legal intent may result inadvertently in violating laws, bringing irreparable harm to students, and causing financial loss to districts.

The purpose of this paper is to provide school officials and teachers with the necessary legal background, procedural requirements, and guidance for appropriate implementation of individualized educational programs (IEP) with violent students with disabilities. This paper addresses (a) legal background of special education, (b) required procedures and issues related to discipline, and (c) discipline and proper IEP implementation.

Legal Background of Special Education

IDEA and Section 504

The Individuals with Disabilities Education Act (IDEA) (1990) and Section 504 of the Rehabilitation Act (1973) were enacted to protect students with disabilities from being "unserved" due to their disabilities. The central intent of IDEA is to provide a free appropriate public education (FAPE) to all students with disabilities. To accomplish FAPE, IDEA mandates that states implement "specially designed instruction" to meet the unique needs of children with disabilities so that they receive educational benefit. The Department of Education's Office of Special Education Programs (OSEP) has the responsibility of issuing rulings and monitoring compliance of IDEA.

Section 504 mandates that recipients receiving federal financial assistance provide FAPE to children with disabilities by designing instruction that meets their needs "as adequately as" that for students without disabilities. The primary purpose of Section 504, moreover, is to prohibit discrimination against persons based on their disability, including a wide range of persons with disabilities. All children eligible for the protection of IDEA also are eligible for the protection under Section 504. The federal Office of Civil Rights (OCR) has the responsibility of issuing rulings and monitoring compliance of Section 504.

Section 504 includes all students eligible for IDEA and a wide range of students with disabilities who are not under the protection of IDEA. Common to both laws is the provision of FAPE to children with disabilities. The next section provides a discussion on how schools should provide FAPE.

Free Appropriate Public Education

The Supreme Court ruling of *Board of Education of the Hendrick Hudson Central School District, Westchester County v. Rowley* (1982) defined FAPE as a program which (a) follows procedural requirements of IDEA and (b) is reasonably calculated to allow the student to receive educational benefits. Thus, schools should provide FAPE to students based on the IEPs which are individually developed through IDEA's procedures to receive educational benefits. Failure to comply with the procedural requirements in developing the IEP results in violation of IDEA and Section 504.

In summary, IDEA and Section 504 were enacted to protect students with disabilities by ensuring FAPE. The IEP plays a pivotal role in assisting schools to provide FAPE to students with disabilities. The next section discusses schools' twofold responsibility to implement legitimate procedures in providing FAPE: (a) procedural safeguards and due process and (b) correct process in providing FAPE.

Required Procedures

Individualized processes must be employed in providing FAPE to students with disabilities. However, schools also must follow general procedures and processes required by IDEA and Section 504.

Procedural Safeguards and Due Process

Parental knowledge and rights are central to ensuring the law works as intended. Procedural safeguards and due process include parents' rights to have prior notice and consent in providing FAPE, to have access to a student's records, to request a hearing, and to appeal a hearing decision.

Notice. Parents must be given prior information about their rights whenever schools propose or refuse to initiate or change the identification, evaluation, program, or placement of their children. Thus, schools must provide a notice to parents prior to a change in placement. Since expulsion is a change in placement according to OCR policy (October 28, 1988), schools must provide a written notice to parents in a reasonable time before expulsion of a student (at least 10 days before the action, according to the Supreme Court decision of *Honig v. Doe*). The notice must include a full explanation of parents' rights (a) to inspect and review all education records of relevant actions and the provision of FAPE to the child, (b) to have due process, and (c) to obtain independent evaluation if students are under the IDEA's eligibility. The notice also must include a description of the action, an explanation of why the action was taken, a description of each evaluation procedure, and a description of any other factor relevant to the action. The notice must be written in the parents' native language. In providing FAPE, a school not only must comply with procedural safeguards and due process required by IDEA, but also follow correct procedures.

Correct Process in Providing FAPE

Evaluation-IEP-Placement. In providing FAPE, first, a multidisciplinary team must individually evaluate a student's eligibility for the protection of IDEA and Section 504. The student's eligibility leads to an IEP team to develop the student's IEP to meet the student's unique needs. Then a multidisciplinary team determines placement to effectively implement the student's IEP. In determining the placement, the multidisciplinary team should consider educating the student in the least restrictive environment among a range of possible placements. In carrying out evaluation-IEP development-placement, reversing the order between the IEP development and placement determination is the incorrect process in providing FAPE (Bateman, 1992; Bateman & Chard, 1994). The same correct process must be applied in changing placement, that is, the IEP should be developed prior to a change in placement.

A Change in Placement. A change in physical location is not necessarily a change in placement. However, a change in physical location requiring a change in program, or a change in program that substantially affects a student's IEP, is a change in placement, invoking procedural safeguards and due process according to OSEP policy (August 8, 1980). At least 10 days after giving notice, the school may implement the new placement based on the new IEP unless parents request a hearing. Upon disagreement between a school and parents, the district's or parents' request for a hearing triggers the "stay-put" provision of IDEA.

Stay-Put Provision. The "stay-put" provision requires that the student stay in the current placement until hearings and appeals are completed. For example, in the Texas City Independent School District (1990), 13-year-old Jorstad was diagnosed as having a psychotic disorder. Jorstad engaged in violent and dangerous behavior involving approximately 30 physical assaults on teachers, staff, and other students. As Jorstad's behavior deteriorated to the point of trying to jump out of second floor windows and threatening to kill himself and others, the school implemented reevaluation of Jorstad by complying with procedural safeguards and due process provisions. Jorstad's misconduct was determined to be related to his disability. The school proposed a placement change to a more structured environment; however, the parents disagreed with the proposed educational placement. As a result of the parents' request for a hearing, the school had to keep Jorstad in the current educational placement until administrative proceedings could be resolved.

The "stay-put" provision prohibits school authorities from unilaterally excluding students with disabilities from a classroom during pending review proceedings. However, since the Supreme Court decision of *Honig v. Doe* (1988) refused to recognize the existence of a dangerous exception to stay-put provision, the *Jeffords Amendment* (1994) became the first exception to the stay-put provision.

Jeffords. The "stay-put" provision has made it difficult for school administrators to handle a student with disabilities who brings a gun to school because they may be forced to keep the student in the current placement. However, in the IDEA reauthorization bill which is expected to pass in early 1995, the "stay-put" provision will not be applied to IDEA students with disabilities who bring guns to school. According to the Jeffords Amendment (1994) which is now in effect and will be incorporated into the IDEA reauthorization bill, schools can move students who bring guns to school to an "alternative education placement" for a maximum of 45 days if a multidisciplinary team determines that bringing the gun to school is not related to the student's disability. During this 45-day period, parents may request a due process hearing, but the "stay put" provision will not apply. Thus, schools will not be forced to keep the student in the current placement during the 45 days; the student must remain in the alternative education placement until any appeal is resolved.

Preliminary Injunction. In extreme and immediately dangerous situations which are not related to bringing guns to schools, school districts may ask for a court order to exclude a student. In Jorstad's case, the school district petitioned for a preliminary injunction to enjoin the student from attending his regular classroom. The school district had to demonstrate that (a) retaining the student in his current placement was likely to result in irreparable harm to himself and to others, (b) the school was likely to succeed with the petition (in this case, the school had well-documented the student's behavioral condition, which was constant and dangerous), (c) a preliminary injunction would serve the public interest, and (d) the student would not suffer any realistic harm by a temporary change in placement. The court held for the district and ordered that Jorstad be limited to enrollment in the behavioral modification class or a home study program until completion of administrative review. Every district that seeks a preliminary injunction must demonstrate these merits of their claim or something very similar.

Before seeking a court order, school districts need to make adequate determination as to whether the behavior is really dangerous and constitutes an emergency. A seemingly similar situation occurred in Texas City Independent School District (1990); the court, however, denied the school's request for emergency relief. J.D., a 15-year-old, was identified as seriously emotionally disturbed (SED). He was attending an alternative school. J.D. was very big - about six feet tall and 250 pounds - and engaged in suicidal remarks and disobedient behaviors. He threatened the principal several times. Because of these threats against the principal, he was suspended for 10 days. While his parents awaited the results of an independent evaluation, the school asked the court for a preliminary injunction to remove J.D. from the current educational placement. The court, however, rejected the school board's petition and concluded that J.D. did not meet the dangerous standard because he was verbally threatening but caused no injury. Although the laws require districts to comply with generalized procedural requirements to protect all students with disabilities, court decisions are made based on individual students' situations. Thus, making generalizations of what behavior is more dangerous than others is impossible. It is more beneficial to examine individual incidents in their unique contexts.

In summary, the school must send notice prior to a change in placement. A change in placement should be made based on the IEP. Upon the disagreement with a proposed placement, a parental request for a hearing triggers the "stay-put" provision. In an emergency situation, school districts (a) may ask for a preliminary injunction from a court to remove a student from the current placement or (b) remove IDEA students who bring guns to schools to an "alternative placement." Required procedures and issues related to discipline are discussed in the next section.

Required Procedures and Issues Related to Discipline

IDEA and Section 504 do not include specific regulations that address disciplinary procedures for students with disabilities. Administrative agencies and courts, however, have interpreted both laws and have provided principles and guidelines for disciplining students with disabilities.

Long-Term Suspension and Expulsion

According to the Supreme Court's decision in *Honig v. Doe* (1988) and OCR policy (October 28, 1988), the removal of students with disabilities from school for more than 10 consecutive school days (7 days in Oregon) constitutes *a change in placement* and invokes the procedural protections of IDEA. Section 504 regulation at 34 C.F.R.104.35 requires a recipient to reevaluate a student before any subsequent "significant change in placement" and to implement reevaluation procedures consistent with procedures required by IDEA. Thus, whenever schools intend to discipline students by expulsion or long-term suspension for more than ten consecutive school days, schools must reevaluate the students, following the requirements of the procedural safeguards and due process of IDEA and Section 504.

Required Procedures for the Discipline of Students

Review of Eligibility. Previously, only students with disabilities who are formally identified under IDEA and/or Section 504 were entitled to protection in disciplinary procedures. Presently, students who are currently undergoing evaluation for special education also are entitled to discipline protection. For example, in *In re Child with Disabilities* (1993), while the district intentionally delayed the evaluation of the student's eligibility, the district filed a juvenile petition because of the student's vandalism; the court held for the parents. Under *M. P. v. Governing Board of the Grossmont Union High School District* (1993) and *Hacienda La Puente School District of Los Angeles v. Honig* (1992), the Ninth Circuit rejected the contention that the protection of IDEA only applied to children who previously had been determined to have disabilities. In *M.P.*, the parents alleged that their child had disabilities after the school had expelled the student who brought a gun to school. The parents requested due process, triggering the stay-put provision (this case occurred before the Jeffords Amendment; now, the "stay-put" provision does not apply in cases like this situation). On the school's refusal to admit the student, the parents sought to restrain the district from excluding the student from school. The court held for the parents. However, presently, other Circuits may or may not rule as the Ninth Circuit did in *M.P. v. Grossmont Sch. Dist.* (1993) and *Hacienda v. Honig* (1992). The procedural safeguards of IDEA may be applied regardless of whether a child previously has been identified as having disabilities.

As an exception of reevaluation, according to Americans with Disabilities Act of 1990 which is an amendment to Section 504, students who are currently engaging in the illegal use of drugs or alcohol are excluded from the protection of procedural safeguards and due process if the students are eligible for *only* Section 504. Thus, schools may expel these students without reevaluation. However, IDEA students who are currently using illegal drugs and alcohol are consistently entitled to the protection of procedural safeguards and due process; thus, schools must reevaluate IDEA students.

Determination of Relationship Between Misconduct and Disability. The Supreme Court in *Honig v. Doe* (1988) first held that districts must determine the relationship between misconduct and disability before disciplining students. According to OCR policy, a specialized, knowledgeable group of persons must determine, before expulsion or long-term suspension of students, whether the student's misconduct is related to his/her disability or whether the misbehavior is the result of an inappropriate program or placement. Even though courts are mostly concerned with whether schools followed required procedures, the court in *Stuart v. Nappi* (1978) ordered the school to conduct an immediate review of the student's program and placement upon the parents' seeking a preliminary injunction to prevent the student's expulsion. Examining the relationship between a student's disability and program and placement should be conducted, which also will help to propose alternative programs and placements.

In S-1 v. Turlington (1981), the court provided guidelines in determining whether misconduct is a "manifestation of a disability." First, a group of persons who are knowledgeable about both the student and special education should determine whether a student's misconduct is a manifestation of his/her disability; they may be the same group of people who make placement decisions. Although the Ninth Circuit in Doe v. Maher (1986) stated that the IEP team rather than a knowledgeable professional team should determine the relationship between behavior and disability, this ruling has been criticized and considered as error by the Attorney General of the state of Oregon (Bateman & Chard, 1994).

Second, *S-1 v. Turlington* (1981) said the determination must be made based on recent and relevant information, including psychological data related to the student's behavior. Third, the determination that a student's misconduct is a manifestation of a disability cannot be made based on whether the student knew the difference between right or wrong. Fourth, the determination as to whether misconduct is related to a disability cannot be made on the basis of a student's classified disability. If a student with a physical disability, for example, misbehaves toward peers who tease him, the positive relation between the misbehavior and his disability should be determined even though the student's disability is not EBD. Early on, some individuals thought only students with EBD could cause misbehavior.

In determining a relationship between behavior and disability, most Circuit Courts accept it as an indirect relationship. For example, the Fourth Circuit Court in *Malone v. School Board of County of Prince William, Virginia* (1989) was convinced that a student with a learning disability delivered drugs because his need for peer approval and attention resulted from his disability. The courts believe that students engaging in misconduct because they have little or no control should not be punished. The Ninth Circuit, however, requires the presence of a direct relationship before determining that the misconduct is related to a student's disability (*Honig v. Doe*).

If Misconduct is Related to Disability. If a multidisciplinary team determines that a student's misconduct resulted from his/her disability or was the result of an inappropriate program or placement, the school cannot expel the student. Instead, the school should consider changing the student's program and/or placement. Then, schools must convene an IEP meeting while complying with procedural safeguards and the due process requirement of IDEA. Then, based on the IEP team's evaluation, the IEP team develops a new IEP and proposes alternative placements.

If Misconduct is Not Related to Disability. If a multidisciplinary team determines that a student's misconduct is not related to the student's disability, schools may expel or suspend the student in the same manner as students without disabilities. However, because expulsion or long-term suspension constitutes a change in placement, schools must comply with procedures required by IDEA and Section 504. Prior to placement change, schools must convene an IEP meeting to develop a new IEP which will be used during the period of exclusion from schools.

After a student is expelled from school as a result of misconduct that is not a manifestation of his/her disability, schools must continue to provide educational services for the student who is protected under IDEA. The court of *S-1 v. Turlington* (1981) considered expulsion a disciplinary tool under IDEA and Section 504; however, complete cessation of educational services during the expulsion period is not permissible for IDEA students. The Office of Special Education and Rehabilitative Services (OSERS) which is the agency in charge of IDEA administration, issued a discipline policy to provide FAPE to expelled students (September 15, 1989). The discipline policy is now being contested by Virginia and California education agencies. However, the OSERS policy was confirmed by the Seventh Circuit decision of *Metropolitan School District of Wayne Township v. Davila* (1992). Under Oregon law (ORS 327.103; 339.250[b]), schools must offer at least two appropriate and accessible alternative education programs after a student is expelled from school. Schools, however, may cease educational services for students who are protected *only* under Section 504 *and* are not in the Fifth or the Eleventh Circuits, unless the cessation of educational services constitutes discrimination against students with disabilities; the action can be consistent with actions taken for students without a disability.

In summary, whenever the removal of a student from school constitutes a change in placement, schools must re-evaluate the student, following procedures required by IDEA and Section 504. If a positive relationship between misbehavior and a disability is determined, schools must propose alternative placements or programs instead of expulsion. If no relationship between misconduct and a disability is determined, schools can expel the student but must continue to provide educational services during expulsion.

Short-Term Suspension

Schools may use short-term suspension as a disciplinary tool for students with disabilities as long as a series of suspensions does not create a pattern of exclusion that constitutes a significant change in placement. According to the OCR policy (October 28, 1988), a series of suspensions that are each of 10 days or fewer in duration creates a pattern of exclusions that constitutes a "significant change in placement." Among the factors that should be considered in determining whether a series of suspensions has resulted in a "significant change in placement" are (a) the length of each suspension, (b) the proximity of the suspensions to one another, and (c) the total amount of time the child is excluded from school. Thus, the determination of whether a series of suspensions creates a pattern of exclusion must be made on a case-by-case basis. Under Or-

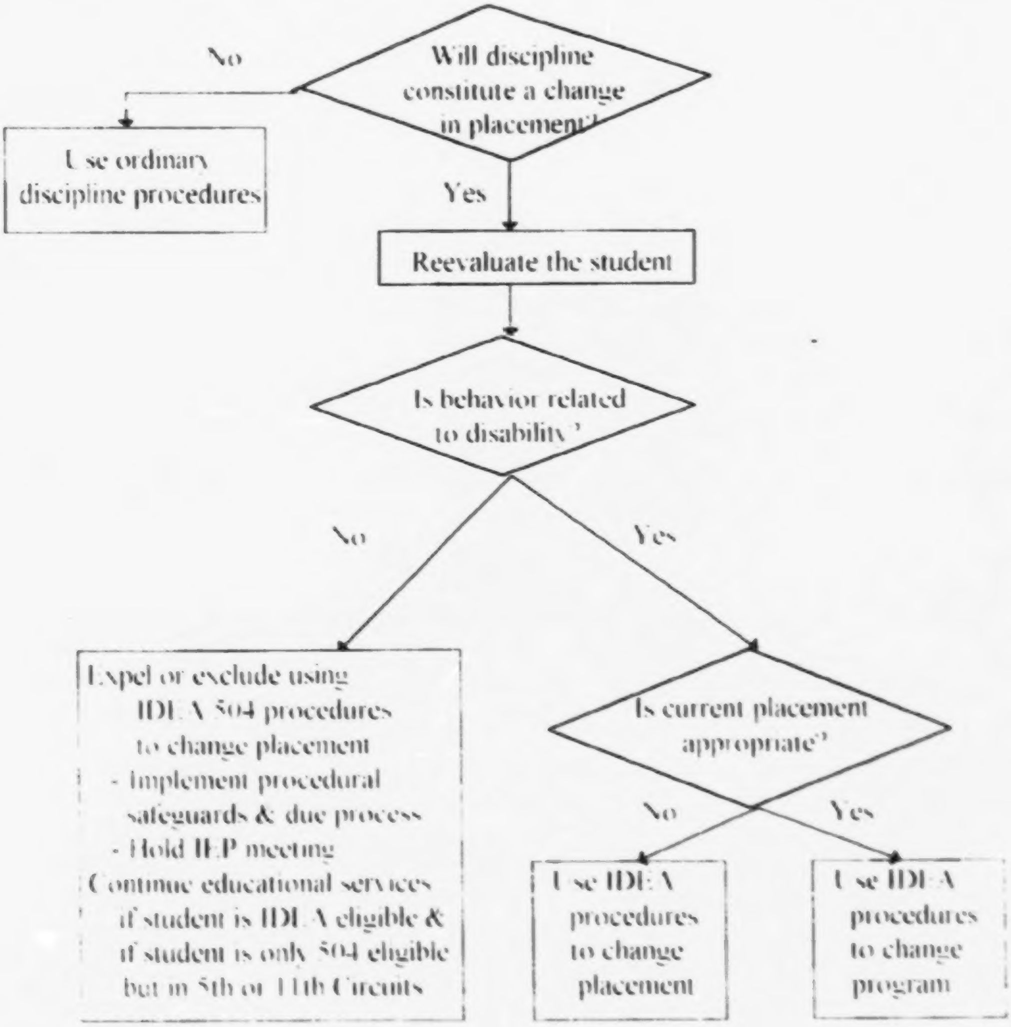
No
Will discipline constitute a change in placement?
Use ordinary discipline procedures
Yes
Reevaluate the student
Is behavior related to disability?
No
Yes
Expel or exclude using IDEA 504 procedures to change placement
- Implement procedural safeguards & due process
- Hold IEP meeting
Continue educational services if student is IDEA eligible & if student is only 504 eligible but in 5th or 11th Circuits
Is current placement appropriate?
No
Yes
Use IDEA procedures to change placement
Use IDEA procedures to change program

Figure 1. Legal discipline for section 504/IDEA eligible student procedures.

egon law, a suspension may not exceed seven calendar days. In an emergency situation, schools can temporarily suspend students.

Emergency Situation

In an immediately dangerous situation, schools may use temporary suspension. However, before short-term suspension becomes a change in placement exceeding 10 school days cumulatively, school districts would be wise to re-evaluate the student's program and/or placement. In the Denver Public School District in Colorado (1992) for example, a student with emotional and learning disabilities brought a gun to school. The district initially suspended him for 5 days and then extended the suspension for another 15 days. At the end of the suspension, a staffing committee determined that his misconduct was related to his disability and proposed a change in placement. An OCR investigation of the case pointed out that this suspension, exceeding 10 consecutive days, constituted a change in placement and required re-evaluation. The OCR concluded that the district's failure to conduct the re-evaluation before his significant change in placement is a violation of FAPE. Thus, students who display repeated misbehavior and earn frequent suspensions should be re-evaluated before short suspensions (i.e., less than 10 days) become a change in placement.

To summarize, schools may implement temporary suspension as disciplinary tools and to cope with an emergency situation; however, immediately conducting re-evaluation of the student would be appropriate and safe. In the following section, students who engage in minor violent behaviors and the appropriate IEP implementation are discussed.

Discipline and IEP Implementation: Case Laws

IDEA requires that an IEP include a statement of a student's present level of educational performance, annual goals, and special education and related services to be provided to each student. IDEA expressively does not mandate the particular teacher, materials, or instructional methods to be included in the IEP. However, if parents complain that their children are not receiving educational benefit from a current program and methods, an investigation may be initiated to determine whether the school district carried out its legal responsibilities in properly implementing the IEP. In the following section, case law that yields important lessons about the proper implementation of IEPs and discipline is discussed.

Discipline and IEP Components

If an IEP includes discipline strategies, schools should use the discipline strategies specified in the student's IEP in actual contexts. In regard to this issue, one OCR investigation of *West Las Vegas, NM School District* (1993) revealed that a bus driver, who according to the district policies was responsible for resolving disciplinary problems occurring on the bus, used corporal punishment and denied bus services to a student with a behavior disorder. OCR found that the student's IEP specified certain disciplinary strategies that were to be used in dealing with his problem behavior on the bus; the school, however, did not inform the driver of the appropriate disciplinary techniques for the student. OCR concluded that the district violated the regulation of IDEA and Section 504 by failing to properly implement the student's IEP. This case shows that disciplinary or behavioral strategies specified in an IEP must be implemented appropriately in relevant contexts.

Another OCR investigation of San Juan Unified School District in California (1993) offered several suggestions as to proper implementation of FAPE related to discipline. The school disciplined a 13-year-old student with a learning disability and attention deficit hyperactivity disorder (ADHD) by means of a series of suspensions, which totaled more than 10 days cumulatively. OCR concluded that a

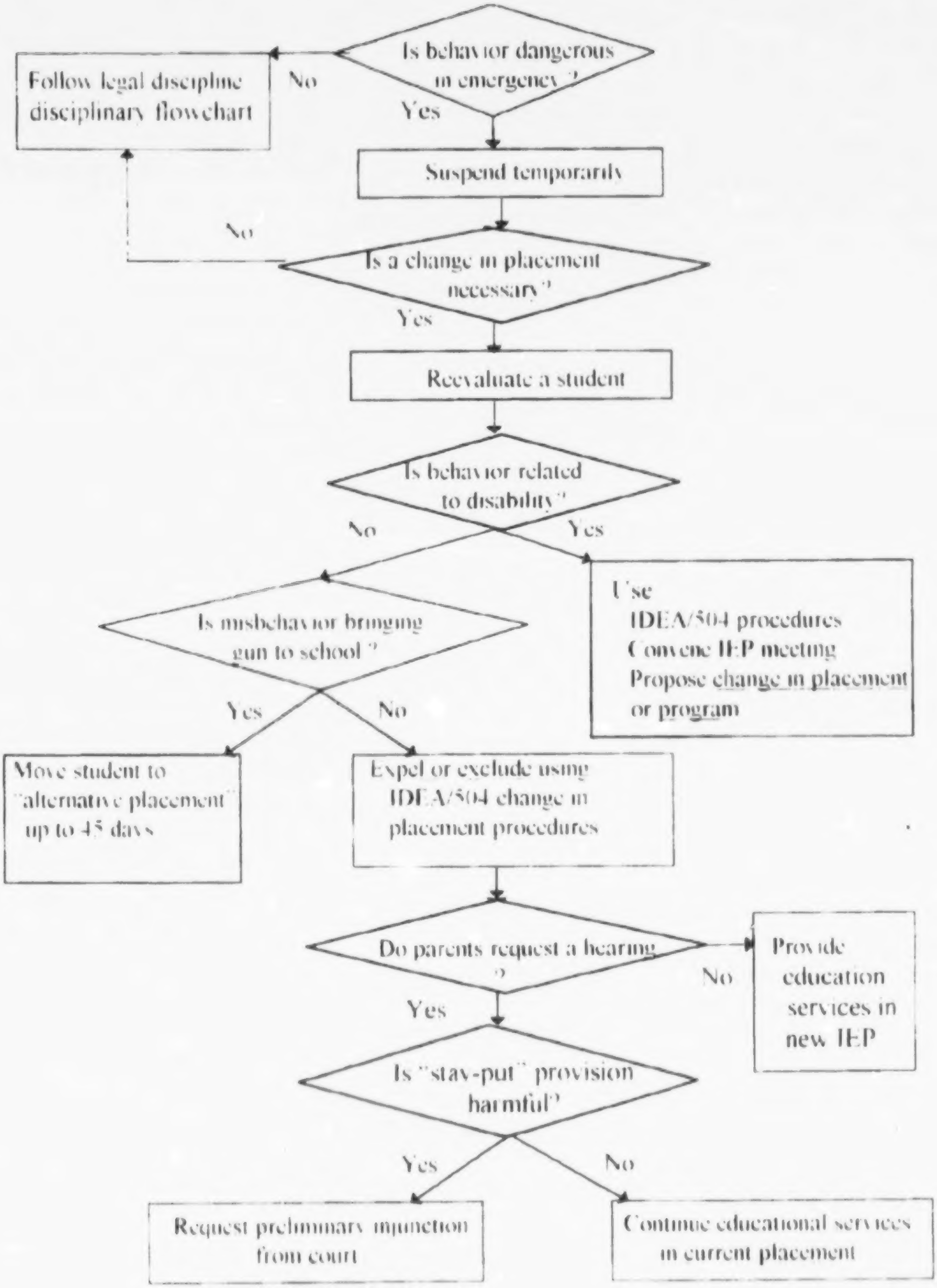
Is behavior dangerous in emergency?
No
Follow legal discipline disciplinary flowchart
Yes
Suspend temporarily
No
Is a change in placement necessary?
Yes
Reevaluate a student
Is behavior related to disability?
No
Yes
Use
IDEA/504 procedures
Convene IEP meeting
Propose change in placement or program
Is misbehavior bringing gun to school?
Yes
No
Move student to "alternative placement" up to 45 days
Expel or exclude using IDEA/504 change in placement procedures
Do parents request a hearing?
No
Provide education services in new IEP
Yes
Is "stay-put" provision harmful?
Yes
No
Request preliminary injunction from court
Continue educational services in current placement

Figure 2. Discipline procedures requiring emergency flowchart.

series of suspensions constituted a significant change in placement. The school district's failure to re-evaluate the student violated regulations of IDEA and Section 504. According to the OCR investigation, the school placed the student in the current program because the previous teacher expressed willingness to work with him and suspended him while a series of substitute teachers were teaching. The student's behavior, however, continued to deteriorate during the discipline period. Beyond the inappropriate educational decisions and incorrect discipline procedures, the most highlighted issue in this case was that the school failed to ensure that the student regularly took the medication that she needed to interact appropriately in the school setting. OCR concluded that the administration of the student's medication was a related service because the student's IEP states that the medication should be taken consistently. The school district had responsibilities to ensure that the student took the medication because the student had a long history of attention problems related to ADHD. Therefore, the district failed to provide a related service and denied the student FAPE in violation of IDEA and Section 504.

Silver Lake Regional School District, Massachusetts (1994) offered a positive example in implementing discipline measures and developing the IEP. Louis was an 18-year-old student with ADHD and oppositional/defiant disorders. He had been disciplined by a series of detentions because of his minor inappropriate behaviors such as class tardiness, fooling around in class, and pushing the emergency intercom button. The school's record indicated that Louis could conform his behavior to disciplinary rules. The school developed an IEP that included behavioral strategies such as preferential seating, cueing, and redirection to maximize development of Louis' behavioral skills. Additionally, the IEP included the statement of discipline measures: Louis did not require modification of the school disciplinary code; the school planned to provide a special education consultant and counseling by psychologists as needed. The parents challenged, arguing that modification of the disciplinary code is necessary for Louis because he cannot conform his behavior to rules, and his self-esteem decreased during suspensions. However, the hearing officer considered that Louis needed the school's disciplinary rules to have consequences for his actions in order to gain better control over his impulsive behaviors. Thus, the hearing officer ordered the school to discipline Louis according to his IEP. This case shows that including specific behavioral strategies and disciplinary measures on IEPs is appropriate, particularly if students are suspected to have behavioral deficits and a disciplinary record. However, schools cannot use the IEP to waive students' rights to disciplinary protection. For example, many schools write on the IEP that parents will remove a child from school when the district calls to remove the child; then, they call it a "parental removal" instead of the suspension it really is (from personal conversation with Bateman, December 2, 1994).

IEPs are important for students to improve their behavior and to receive educational benefits. Often schools omit behavioral components from students' IEPs because of difficulties in determining target behavior, developing curricula for social skills, and writing behavioral objectives (Sugai & Colvin, 1990). However, school districts should know that IEPs can be used to guide school personnel in improving behavior and in disciplining students properly and legally.

In summary, the IEP consists of specially designed instruction and related services to meet needs of individual students. School districts have responsibilities to properly develop and implement IEPs. For students to receive educational benefits and improve their behaviors, they must have access to these properly developed and implemented IEPs.

Conclusion

The purposes of IDEA and Section 504 are to protect students with disabilities. Therefore, laws vigorously seek to distinguish a student's violent behavior that can be attributed to his or her disability from violent behavior that is not associated with a disability. Although much research has proposed various hypothetical explanations of why students engage in violent behavior (Baron & Richardson, 1994), research has found no methodologies that explain specific causal relationships between violent behavior and its attributing factors (Kauffman, 1989, 1994). At present, the process of distinguishing misconduct from disability depends on professionals' opinions rather than reliance on scientific methods. From the view that individual students' violent behaviors are learned within individual histories in unique contexts, it is pleasing that courts have evaluated individual cases by examining each unique situation within the established framework of law. Like court cases, schools cannot apply universal discipline rules to all students. No general disciplinary rules which can apply to all students with disabilities exist; however, IDEA, Section 504, and administrative rulings provide discipline procedures which should be generalized to all students with disabilities. Thus, schools should examine the unique and complex situations of individual students, but within the required procedures of the law.

This paper has attempted to further the understanding of the underlying purpose of required procedures and issues related to disciplining students with disabilities. A better understanding of legal intent also might help school officials and teachers to properly perform their responsibilities with fewer conflicts in violent school environments.

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Character Education Revisited: Historical and Contemporary Perspectives in the State of Oregon

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IT SEEMS EVIDENT, THEN, THAT TEACHERS SHOULD CONCEIVE OF THEIR TASKS AS ONE OF TRAINING children in desirable modes of social response rather than as one of mere order, discipline or control of behavior; that they should give behavior problems a place of importance coordinate with, not subordinate to, the training of the intellect; that they should adopt a more direct and systematic method of instruction to supplement the incidental method of the past; that they should realize, in line with more recent investigation, the improvability of personality, and reject the doctrine of hereditary determinism; and that they should become aware of the solid sanctions for the behavior objective in a properly constructed curriculum, disabusing their minds of the notion that morality is a mere convention. (Breed, cited in Jewell & Blackler, 1930, pp. 7-8)

During the past decade there has been a resurgence of interest in character education. The promotion of character attributes in our public schools has become, for many, a national priority (Bennett, 1993; Fineman, 1994; Lickona, 1991). Increasingly, professional organizations are forming character education partnerships and coalitions with educators, business leaders, and community members who want to see a greater emphasis placed on character development in our society as a whole, and within our public schools specifically (Berreth, 1993; Ryan, 1994). In addition, large scale character education "pilot" programs are being implemented in a variety of school districts across the nation (Battistich, Solomon, Watson, Solomon, & Schaps, 1989; Beswick, 1992; Brooks & Kann, 1993; Moody & MaKay, 1993).

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Recent public opinion polls suggest that there is a high level of agreement on which values can and should be taught in the public schools (Elam, Rose, & Gallup, 1993). Over 90% of the respondents from the *Phi Delta Kappan/Gallup Poll* indicated that social values, such as honesty, democracy, acceptance, patriotism, caring, and courage, can and should be taught in our schools. In addition, *Newsweek* recently conducted a poll and found that the American public has distributed blame for the problem of low morals and personal character across a broad spectrum of social institutions (Fineman, 1994). Results from the *Newsweek* poll indicated that the breakdown of the family (77%), individuals themselves (76%), television and other forms of entertainment (67%), government and political leaders (55%), economic conditions (50%), the schools (44%), and religious institutions (26%) were perceived as causes of low moral values and character in the United States.

Historically, character education has been an important and comprehensive part of public education (Beals, 1950; De Pry & Sugai, 1994: McClellan, 1992; Menegat, 1930). From our earliest schools to the present, educators have used a variety of methods to help shape student conduct. These methods have become more diverse and secular as society has adopted more heterogenous social and religious viewpoints. Current interest in character education spans political and religious boundaries (Fineman, 1994) and is based on a belief that character, and ultimately responsible citizenship, can and should be taught in our public schools.

It is notable that since 1929 teachers have been mandated by law to provide character education to students in Oregon's public schools (Jewell & Blackler, 1930; ORS 336.067; OAR 581-21-20). In addition, growing evidence suggests that character education will continue to be championed by parents, educators, and politicians in the coming decades. This paper examines the historical antecedents of providing character education in the state of Oregon and juxtaposes this perspective with contemporary policies, priorities, programs, and research on character education and school-wide behavioral support.

This paper also represents an extension and elaboration of our initial examination of character education (De Pry & Sugai, 1994). The major points from that paper can be summarized by the following statements:

1. "Public schools have and will continue to teach curriculum that is value-laden, and that parents and other community members want their children exposed to values education in the public schools." (p. 133)
2. "Two important questions remain for many school, family, and community members: 'What values will be taught?' and 'Whose values will be taught?'" (p. 134)
3. "Research data to date suggest that we might be able to change one's knowledge of moral values and character, but we see little concomitant change in moral conduct." (p. 134)
4. "Without solid research into effective methods of teaching values, character, and moral conduct, the educational pendulum is likely to swing in the direction of the latest character education fad until it loses its momentum and is replaced by another way (Slavin, 1989)." (p. 134)
5. "The larger question....is finding empirically validated methods that result in improved displays of moral conduct or behaviors by students in public schools. Some research findings point us in the direction of the effective schools literature." (p. 134).
6. "Teachers seem to play an important modeling role in the development of character and the shaping of moral conduct." (p. 134)

Historical Perspectives

In our previous paper (De Pry & Sugai, 1994), we focused on the inculcation of morals and values as a central goal of education by examining the (a) moral education beliefs of various historical figures (e.g., Plutarch, Talleyrand, Girard, Aristotle), (b) importance of specific publications (e.g., *McGuffey's Readers, Studies in the Nature of Character, Studies in the Organization of Character*, and *Educational Leadership*'s special issue on character education), and (c) critical features of the moral development and values clarification movements. In this section, we focus on the historical antecedents of moral development, character education, and moral conduct in the state of Oregon.

Historical Antecedents of Character Education in the State of Oregon

In 1929, the Oregon Legislature passed Senate Bill No. 86, which called for the development of a course of study on character education. The State Department of Education was given the charge to develop a course of study that would "be used by every teacher in the public schools of the state" (Jewell & Blackler, 1930, p. 3). Prior to the passage of this legislation, a booklet, titled *Moral Instruction in the Public Schools Through the Use of the Story*, was issued by J. A. Churchill, Superintendent of Public Instruction, in 1917, and circulated widely in the state. Once character education received legislative recognition in 1929, a revised manual was published and disseminated to Oregon's public school teachers titled *Character Education: A Manual for Oregon Teachers* (Jewell & Blackler, 1930).

The revised character education manual was issued by C. A. Howard, Superintendent of Public Instruction, who in the introductory section to teachers, outlined four beliefs regarding character education: (a) "character development must be the object of every teacher of every subject all of the time," (b) that the procedures outlined in the character education manual represent sound pedagogy, (c) that recognition of the principles and objectives of character education is "essential to the highest type of teaching," and (d) that the state of Oregon is obligated to have a definite program of character education in the public schools.

To develop this manual, authors J. R. Jewell, Dean of the School of Vocational Education, Oregon State Agricultural College, and R. C. Blackler, Principal, Mt. Tabor School in Portland, Oregon, spent two years surveying the literature and compiling ideas from programs across the nation. While only 62 pages long, this manual provides a wealth of information on the teaching and development of character and student conduct. For example, the following contents are emphasized: (a) combined sampling of current pedagogical and psychological thinking on the development of character in children, (b) lists of character objectives by grade levels, (c) sample lesson plans, and (d) delineation of rudimentary methods for measurement of progress and attainment of character.

Character Education in the 1930s

During the 1930s, character educators used a variety of curricular and extracurricular activities to teach and reinforce student conduct. Positive school-wide rules and codes of conduct were becoming commonplace (Beals, 1950; Menegat, 1930). In addition, teachers used current events and curricula to extend academic lessons into the realm of character development. Posters, pamphlets, clubs and school-wide service groups promoted a variety of character attributes within the school community. Organizations, such as the Boy Scouts, Girl Scouts, YMCA, 4-H, Camp Fire Girls, and the Junior Red Cross, reinforced community and familial efforts to develop character (Hartshorne, 1932; McClellan, 1992).

During this period, character education was recognized widely as an important component of a child's education. Proponents argued that the training of the intellect should complement the development of character. Character was promulgated as the "ultimate end" of education (Jewell & Blackler, 1930). It was also during this time that the empirical research of Hartshorne and May (1928-1930) was being disseminated to educators. The work of Hartshorne, May, and associates, represents the largest and most comprehensive study of the nature and organization of character, deceit, service, and self control to date (De Pry & Sugai, 1994).

Beals (1950) summarized the overall conclusions of Hartshorne and May's mammoth program of research. He writes:

> Several conclusions are made concerning the organization of the total character which are of importance. First, that conduct represents an achievement association between a certain type of situation and a certain type of response. Second, the average child of grades five to eight, is chiefly a creature of circumstances; whether his conduct happens to be good or bad, it is ethically unorganized. Third, moral habits are specifically related to moral situations through the medium of non-moral experiences. Fourth, the amount and consistency of character tend to go together. Fifth, there is little integration of character in this generation. (p. 126)

Moreover, Hartshorne and May found that indirect methods of teaching character education, adult inconsistency, control of behavior using harsh discipline or abstract ideals, lack of environmental controls, poor use of individualized assessments, and social ideals unsupported by group code or morale were detrimental features of some character education programs during the 1920s. In an effort to quantify student character and conduct, Hartshorne and May's conclusions may have ultimately led to a declining interest in character education by the end of the 1930s (Power, Higgins, & Kohlberg, 1989). Jewell and Blackler (1930) cited the work of Hartshorne and May, and presumably took their data and recommendations into account when they selected programs that were to be represented in the character education manual that was distributed to Oregon's teachers in 1930.

"Conduct, Character, CONDUCT"

The natural order of character development, according to Kilpatrick (cited in Jewell & Blackler, 1930) is best conceptualized in the phrase: "conduct, Character, CONDUCT." Jewell and Blackler write, " the growth of character begins in specific activities and modes of response, which become in the second place habituated and generalized into more abstract guiding principles of action, which in turn determine final conduct at a higher level" (p. 38).

According to the authors, this process can be understood as activities that have immediate aims (e.g., being on time, cooperating in work and play, and completing tasks), intermediate aims (e.g., demonstrable traits of character, such as, honesty, respect, politeness), and (c) ultimate ends (e.g., preparation for civic relations, vocation, and health).

The "ultimate end" of character education was the development of a responsible citizenry through the systematic teaching of prosocial conduct. Jewell and Blackler (1930) write, "It is exactly for this reason that our public schools are established and maintained by universal public taxation, and the so-called common elementary branches are really, therefore, tools that we place in the hands of our youth so that they may the more easily and surely secure these fundamentals of American civilization" (p. 7). Character education in 1995 shares many of the same beliefs that were espoused 65 years ago. The next section will examine current policies and programs and juxtapose the historical perspective of character education with current research and programs that provide school-wide behavioral support.

Contemporary Perspective

Policies and Programs in Oregon

In January 1990, the Oregon State Board of Education appointed an advisory committee on character education that was empowered to create a new definition of character education and make recommendations regarding curriculum and instruction. The Advisory Committee on Character Education submitted their report to the State Board in May 1991. The Committee recommended that character education be adopted as one part of the definition of a Standard Education for Oregon Students. This recommendation was reviewed and adopted by the Board.

In February 1993, the State Board endorsed the Aspen Declaration on Character Education and directed staff to connect character education to current statewide reforms (e.g., HB 35-65). The Aspen Declaration is a widely disseminated document that outlines the need for character education in our schools and was signed by national leaders in education, business, and religious communities (Josephson Institute, 1992). In addition, the board amended the recently adopted definition of character education to include the wording and ethical values listed in the Aspen Declaration. The definition now reads:

> A standard education for Oregon students is comprised of:
>
> (4) Character education. Character education is the process of helping students develop and practice the core ethical values that our diverse society shares and holds important. These values include, but are not limited to, respect, responsibility, caring, trustworthiness, justice and fairness, and civic virtue and citizenship. (OAR 581-21-200)

The above administrative regulation further defines and operationalizes the Oregon law that requires schools to provide instruction in ethics and morality (ORS 336.067).

To initiate the charge of the Committee, a Character Education Fact Sheet will be distributed by the Oregon Department of Education to Education Service Districts throughout the state early in 1995 (see appendix for fact sheet). Guidelines for the adoption, development, implementation, and evaluation of character education at the school building and district levels will be developed and presented to the State Board of Education for approval late in 1995. Long term and ongoing research on the development of character, student conduct, and school-wide behavioral support will be undertaken in an emerging partnership between the University of Oregon and the Oregon Department of Education.

North Clackamas School District's Character Education Program

Responding to a growing concern within the leadership of the district regrading national trends towards declining student character and conduct, the North Clackamas School District adopted a district-wide character education program in 1988. This process was initiated by Larry Johnson, school board member, who after attending a National School Boards Association meeting, recognized the need to discuss character education as means of addressing declining student conduct (Beswick, 1992). As a result of these discussions, district officials solicited and received widespread input and support from community members and educators within the district. Upon board approval, the district created materials and activities that supported character education throughout the school district. The district has received over 300 inquiries regarding their character education materials since the inception of the program in 1988.

The North Clackamas character education program is designed to operate on a four year cycle. In year one, there is district-wide emphasis on patriotism, integrity, honesty, and courtesy. In year two, respect for authority, respect for others (property and environment), and self-esteem are emphasized. In year three, compassion, self-discipline, responsibility, work ethic, and appreciation of education are emphasized. Lastly, in year four, patience, courage, and cooperation are taught throughout the district. Presently, teachers and community members work together to provide a variety of activities and "teachable moments" designed to reinforce the 13 designated character traits in the district. Beswick (1992) states, "not only did the community play an important part in defining character education, its continuing support is also evident. Identical posters promoting honesty or respect for racial diversity hang in the halls of the schools and local businesses and churches" (p. 18).

The schools in North Clackamas have integrated character education into their curricula in a variety of ways. For example, school-wide behavior management and support systems have been incorporated into the character education program. Positive school-wide rules and student expectations are supported through self-manager cards, posters, and activities. Character education is emphasized in classroom discussions, projects, and lessons. Extracurricular activities incorporate the character education program during school-wide events and assemblies. Community service activities take the program beyond the typical school boundaries and offer students opportunities to demonstrate and practice newly learned behaviors.

Character Education and School-wide Behavioral Support Research

During the past 65 years character education enjoyed widespread popularity and then decreased use. Current efforts to revisit character education in the state of Oregon reflects much of the old and some of the new. Since our 1994 Oregon Conference paper, we have derived two main convictions. The first is that the attention to character education in the state of Oregon is not new, and in fact, what was proposed and done in the early 1930s may be as "good" as what is being proposed today. The challenge is to learn from the accomplishments and slowdowns of the past and to combine what we know works today with what has worked in the past. Secondly, character education must be an integral part of a total school-wide learning environment. The development of "high" moral character and conduct appears to be closely associated with academic success, social competence, proactive adult role models, and consistent use of positive school-wide discipline. In this section, we provide a brief discussion of how positive school-wide behavioral support promises to be an important foundation for the development of student character and moral conduct. For more information about effective school-wide behavioral support, see Sugai and Horner (1994); Colvin, Kameenui, & Sugai (1993); Todd, Horner, and Sugai (1995).

The available empirical literature on character education provides a clear message that mastery of moral knowledge is insufficient in bringing about improvement in moral conduct or behavior (De Pry & Sugai, 1994; Hartshorne & May; 1928; Hartshorne, May, & Maller, 1929; Hartshorne, May, & Shuttleworth, 1930; Jewell & Blacker, 1930, Leming, 1993; Lockwood, 1993). In fact, improvement of moral conduct or behavior may be more closely associated with the characteristics and activities found in effective schools, that is, (a) clear rules are taught, stated, and enforced; (b) students acquire ownership of school rules and their conduct; (c) positive supportive learning environments are provided; and (d) students find satisfaction in rule compliance.

These characteristics are similar to those found in schools that emphasize a positive school-wide approach to discipline or behavioral support. Colvin, Kameenui, and Sugai (1993) indicate that proactive school-wide discipline approaches have five essential features. First, the approach to managing appropriate and inappropriate behavior is consistent. That is, staff as a whole agree to teach appropriate behavior directly and to positively reinforce occasions when those behaviors are observed. Second, a proactive school-wide approach is viewed as a vehicle for student success that must be integrated with but subordinate to the school's larger academic mission and purpose. Third, the management of minor and major problem behavior is focused on a preventative approach in which efforts are focused on helping students make more socially acceptable behavior choices and arranging the learning environment so these choices can be made and acknowledged. Fourth, a proactive school-wide discipline approach has active involvement and support from the building leadership. Fifth, a collegial commitment to change and participation is present. Finally, staff development and support are on-going activities with high priority. Schools and building staff that reflect these features are more likely to occasion students who are described as having high moral conduct. Character education is an unavoidable outcome of a school-wide discipline system that emphasizes positive, consistent, and successful academic and social behavioral outcomes in its approach to behavior management.

Sugai and Horner (1994) and their colleagues have extended this concept of positive school-wide discipline to educating students who present severe behavioral challenges...students who are quickly and easily described as having or lacking "bad" character. Systems of "effective behavioral support" address three major contexts (i.e., school-wide, specific setting, and individual student), and must (a) "address *all* students" in a particular school building or classroom, (b) "emphasize a cross-categorical approach" (e.g., behavior disorders, learning disorders, severe disabilities), and (c) "focus on systems level assessment, implementation, and evaluation" (Sugai & Horner, 1994, p. 113). We believe that this extension enhances the proactive nature of a school-wide system of behavioral support, and, in turn, enriches opportunities for the development and implementation of character education for all students.

Concluding Comments

We concluded our last paper (De Pry & Sugai, 1994) by indicating that "character education is important, and holds promise as a partial solution to the social problems confronting our society" (p. 135). We also stated that "however, we know little about what can work and the degree to which it does work" (p. 135). One year later, we believe that we know much more about what works than we thought. The character education effort in Oregon is 65 years old and we have much to learn from that history. We also have a wealth of knowledge about how to build and operate effective, positive school-wide learning environments for all students. When students are successful in these effective school-wide behaviorally-based systems, they display more behaviors (conduct) that are socially and educationally relevant and cause relevant others (e.g., teachers, parents, peers, administrators) to describe these students as having "good" character or conduct.

Quality character education is an important goal for students and teachers in the state of Oregon. More significantly, attaining this goal is a real possibility; however, sound decision making, clear evaluation criteria, and empirical support are needed to guide the process. If misinformed or uninformed curricular choices are made, if poor instructional practices are implemented, if student outcomes are not evaluated objectively and directly, and if inadequate staff preparation occurs, we would expect character education to "fall from favor" like the efforts made by Jewell and Blackler and state of Oregon in the 1930s. We, however, are hopeful that we can learn from the past and improve our ability to develop prosocial values and conduct in Oregon's students.

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Character Education Fact Sheet

Character grows out of life, is connected with life, expresses itself in terms of life, and must be established through living experiences and through the formation of right habits of action inspired by and conducted according to the highest ideals (Character Education: A Manual for Oregon Teachers, 1930).

History and Background

Character Education has historically held a prominent place in American education. The belief that students can and should be taught academic and character-oriented lessons dates back to our earliest schools.

Recent efforts to emphasize character education are supported by state and national reform efforts that call for public education to link learning with eventual student transitions to work and postsecondary education and through the development of a responsible citizenry.

Character education is not a political or religious mandate, but a responsibility of the public schools to support family and community efforts in providing school-wide environments that set the occasion for the development of prosocial conduct and character. Character educators believe that character and responsible citizenship is learned and can be taught

In support of this belief, the State of Oregon has defined character education "as the process of helping students develop and practice the core ethical values that our diverse society shares and holds important. These values include, but are not limited to, *respect, responsibility, caring, trustworthiness, justice and fairness, and civic virtue"* (OAR 581-21-200).

What We Know About Character Education

We know that didactic methods such as pledges, codes of conduct, and teacher exhortations *do not* have a lasting effect on the development of character. Research also indicates that efforts to promote moral reasoning do not result in lasting changes in student conduct over time and across settings.

Instead, research indicates that student character is shaped by, within, and across environments, in part, by stating and enforcing clear rules of conduct, establishing student ownership of the rules and their conduct, providing a supportive learning environment, and helping students find satisfaction with rule compliance.

Researchers have found that successful programs emphasize (a) direct instructional methods; (b) the different roles the student, family, school, and community play in the development of character; and (c) the development of desirable character conduct attributes over time and across settings.

Implementing Character Education

Burrett and Rusnak (1993) have outlined six principles for implementing character education in our schools:

1. Character education is part of every subject, not just another subject.

2. The school and community are vital partners in the character education of youth.

3. A positive classroom environment supports character education.

4. Empowered teachers are in the best position to carry out the goals of character education.

5. Character education is encouraged through administrative policy and practice.

6. Character education is action education.

Character Education Ideas

As has been pointed out, the alternatives are not character and no character. The alternatives are better or worse character. The problem facing the teacher is how to achieve the best (Character Education: A Manual for Teachers, 1930).

The following ideas have been adapted from the work of several authors on character education. Many of these ideas reflect a need for a school-wide commitment to create an environment that supports prosocial conduct and character development. Several commercial publishers have also created programs that reflect similar ideas.

- Create a school-wide climate that promotes and supports the development of character.
- Invite parents and members of the community to be active partners in character education.
- Use the curricula to reflect on themes related to the teaching of character and values.
- Promote school and community service activities.
- Model positive character attributes.
- Foster an appreciation for excellence through learning and hard work.
- Provide opportunities for social skills training and conflict resolution.
- Provide students with opportunities to participate in extracurricular activities.
- Recognize and reinforce behavior that reflects a school-wide emphasis on character development.
- Teach and support character development at all grade levels.

Schools are, essentially, a community of their own. If the whole school community fosters the language, culture, and climate of good character, then the students who spend a significant portion of their time there will acquire the words, concepts, behaviors, and skills that contribute to good conduct, ethical decision making, and a fertile learning environment (Brooks & Kann, 1993).

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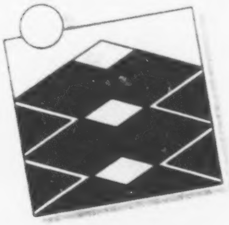
Section III



PROFESSIONAL DEVELOPMENT

Put the Professional Portfolio Into Focus for Individual and Special Education Applications

Dean N. Osterman, Ph.D.
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Teacher Standards and Practices Commission
State of Oregon

> *"AS SKEPTICAL AS I HAVE BEEN ABOUT THE PORTFOLIO, I REALIZE IT GAVE ME A FURTHER NUDGE to focus on myself even more, and most important, it has convinced me of the value of reflecting and evaluating what goes on in it and why . . . I like the concept of this being a 'living' portfolio. It is not cast in stone. It breathes and changes as I do. I have been encouraged to look into myself—what makes me who I feel I am—since beginning this portfolio. I have seen a value in myself that I wasn't always sure existed. And, for today's kids, who seen to have so little sense of worth, of identity, or of hope of ever discovering any, I feel the portfolio could serve to open up a whole new understanding and appreciation of themselves and those around them."* (Donna Galella, eighth grade teacher, New York, NY)

Introduction

Most of the current portfolio usage in education is designed for authentic assessment of pupils' work in K-12 settings. This article focuses upon the use of the portfolio as a tool to assess professional performance as a beginning classroom teacher and in special education applications. Recent studies have confirmed that the portfolio system is reliable for assessing beginning teachers (Smoken & Newman, 1992).

Assessing Professional Growth

In 1993, Teacher Standards and Practices Commission (TSPC) developed a Beginning Teacher Assessment Model (BTAM) pilot study for elementary education teachers in their second or third year in the classroom (Osterman, Myton, and Krug, 1994). The BTAM relies extensively on a portfolio to establish the knowledge and competencies required for the second-stage (Standard) teaching license. The portfolio will include, but not be limited to, evidence of effectiveness drawn from their performance as classroom teachers at the Mastery level. Teachers can use the portfolio to authentically display their professional performance in teaching mainstream and Individualized Educational Plans (IEPs) in the classroom setting.

The purpose of the BTAM assessment is to design an individualized professional development plan for each beginning teacher. That plan may include additional graduate preparation in the subject area, planned work experiences in business and industry related to the teacher's subject matter specialty, and/or further preparation related to teaching methods in the subject. The additional experiences or preparation would be completed during the three-year period to issuance of the second-stage (Standard) license. TSPC believes that teachers who participate in the Beginning Teacher Assessment Model and satisfactorily complete the individualized professional growth plan will be well along the way in preparing for the National Board of Professional Teaching Standards evaluations and certification later in their careers.

Portfolio Contents

Criteria which may be considered in detecting the preparedness of the beginning teacher for standard licensure include competence in written and oral communication, presentation/peer teaching, professional performance in displaying TSPC's 27 competencies (Oregon Administrative Rules 584-15-055 and 584-16-070) for teaching and learning, and community work. The portfolio will be assessed by a team of assessors (elementary teacher, elementary principal, teacher educator, TSPC Commissioner). After the team completes its review of the portfolio, they will make a recommendation for licensure and provide a professional growth plan for the BTAM candidate. The portfolio will then be passed to another team of assessors which will also review the portfolio. If the teams disagree, a committee of TSPC Commissioners will make a final judgment regarding licensure.

Each portfolio will contain two required pieces and optional components as described below:

1. *30-minute video (required).* The videotape will show the teacher's work in an instructional setting. The teacher is required to display how he or she plans for instruction, establishes a classroom conducive to learning, implements instruction, and finally evaluates student achievement. The teacher may display classroom rules, behavior, or learning opportunities; work with students with disabilities; and work on specifics about the classroom, use of IEPs, and other displays of the 27 TSPC competencies.

2. *Work Sample (comprehensive and designed for assessing the candidate's classroom environment).* A work sample consists of a series of related lessons of two- to five-week durations, which is part of the school curriculum and contains the following elements: (1) goals for a unit of study; (2) instructional plans for each lesson; (3) information on pupils' knowledge and skills prior to instruction; (4) data on learning gains resulting from instruction; (5) interpretation and explanation of learning gains or lack thereof; and (6) a description of uses to be made of the findings on learning gains in planning further instruction and in reporting pupil progress. TSPC believes that the work sample will make a difference in the effectiveness of beginning teachers in several important respects. First, work samples focus unit planning on the curriculum objectives of the school and district, by providing direction and a sense of security for teachers who might otherwise be preoccupied with maintaining classroom order or unable to assure adequate coverage of the curricular program. Second, the preparation of the work sample insures that instruction is carefully designed and reviewed before teaching, to assure that content is clearly and carefully developed and instruction is properly sequenced. Third, the work sample provides for accurate assessment of pupil achievement before instruction so that the difficulty of subject matter content matches students' current achievement levels and needs. Fourth, the work sample helps the beginning teacher to estimate the time needed

for instruction and seat work assignments to insure adequate time on academic tasks, sufficient learning activities, and completion of lessons, all of which directly influence pupil achievement. Fifth, the work sample requires analysis of learning gains in relation to district goals, by focusing attention on the use of student performance data in planning subsequent instruction. Finally, the work sample provides a reflection upon how the teacher works individually with special education students and explains their growth.

3. *Six of the Following 10 Items:*

a. *Lessons of Classroom Instruction.* The lesson can include interdisciplinary work or Certificate of Initial Mastery (CIM) requirements to meet the 21st Century reform. Lesson plans can display work with children with disabilities, exceptionalities, IEPs, and other conditions using community and professional resources. Presenting lesson plans from different instructional areas reflect the teacher's ability to plan and carry out instruction over diverse areas. Lesson plans also can illustrate how the instruction uses a variety of instructional techniques to achieve planned objectives.

b. *Student Records of Achievement in the Subject Area.* Examples of what awards and honors are received by students for academic performances. Samples of students' journals, writing projects, science, and math exhibits can be included in the portfolio. Examples of students' work from different lessons can be provided for displaying diversity in learning. The students' work is a direct measure of teacher instruction.

c. *Letters from Teachers or Supervisors.* These letters can document the teacher's work in school and community activities for advancing children in academic fields. Peer review allows for constructive response from others who may be teaching in a related area or competent in giving constructive reactions. Responses from administrators and teachers allow an outside source that is helpful in gaining perspective concerning the relevance of the instruction for what is important for the students.

d. *Small Group Instruction Diagnosis (SGID) Report from Pupils.* This evaluative activity can be included to display likes and areas of improvements suggested by students. The teacher can describe what he or she has done to meet the areas of improvements and illustrate the teaching and learning conditions preferred by the pupils. Students can offer evaluations of teaching content. Further, they can offer opinions about the capability of the teacher to receive valuable information regarding teacher strengths and changes necessary for making improvements.

e. *Personal Statements and Reflections of Work.* Teacher portfolios should reflect the specific strengths and accomplishments of the teacher. Teacher portfolios can facilitate the teacher's own reflection of what he or she has attempted and set as personal goals. These statements allow for the teacher's philosophy of education to be presented. This philosophy helps the teacher in articulating the educational program established and reflects ones belief involving instruction and assessment.

f. *Observation Reports.* Frequently, the teacher is visited by student teachers or visitors from other schools or even other nations. These visitors may write up a report on what they viewed happening in the classroom for demonstrating competencies related to TSPC's 27 competencies.

g. *Classroom Management Procedures and Policies.* The teacher's contingency plans for in-class emergencies, classroom rules and understanding, district procedures, and other policies that express classroom rules and behavioral expectations appropriate to the level of development of the pupils and consistent with laws governing the student rights and responsibilities can be included in the portfolio to prove classroom management.

h. *Examples of Meeting the Needs of Multicultural Diversity.* The teacher can provide samples of principles of sex equity and racial justice. This can be done to show a least restrictive environment for students with disabilities when establishing classroom rules and procedures. The teacher can include lessons of learning the culture and uniqueness of diverse populations, and how he or she adapts unit and lesson plans for exceptional learners from varying cultural, social, and linguistic backgrounds.

i. *Professional Experiences and Work Related in the School Community.* As the teacher works with instructional assistants, parent volunteers, community resources, and business partnerships to achieve instructional objectives, this coordination can show the professional networking activities of the teacher. Also the teacher can list current workshops, inservice, and class activities he/she has attended for continuing to improve one's effective teaching.

j. *Other Pertinent Activities to Demonstrate the Candidate's Competencies in Subject Matter and Professional Knowledge in the Classroom.* Optional in nature, this area can be left to the teacher to explain future goals that include specific objectives that will facilitate the attainment of these goals.

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4. *(Optional) Resume, especially highlighting experience or job related to work with children or adolescents.*

5. *(Optional) Letters of support from mentor teacher.*

6. *(Optional) Letters of support from agencies, colleges, and recognized professionals.*

Portfolio Review Process

The process for assessing the first set of portfolios is as follows:

1. The teacher's professional portfolios will be delivered to TSPC on or before December 30, 1994. Portfolios delivered after that time will not be accepted.

2. TSPC staff will go through the portfolio contents and assign the portfolio to teams that will not bias the results. A group of five Portland State University graduate students will be assigned to monitor the assessment panels and their work. Western Oregon State College's Teacher Research Division will conduct an inter-rater reliability study of the panels.

3. The assessors will examine each portfolio first in groups of four, render a judgment, write a professional growth plan, and sign off as a team for the decision they have made. The portfolio will receive the same treatment with another assessment panel. If there are any major disagreements with the two panel review processes of the portfolio, then a panel of TSPC Commissioners will render a final judgment.

4. Portfolios will then be sent to TSPC's Licensure Committee on March 30, 1995 with a recommendation regarding Standard Licensure. The Licensure Committee will conduct a final quality control check before it makes a recommendation to the full Commission regarding licensure.

5. Shortly after the TSPC March 30-31, 1995 meeting, TSPC will inform all candidates about the results of the Standard Licensure recommendation and provide each candidate with a professional growth plan.

Assessor Training

The panels of assessors receive two days of training and spend two days assessing the portfolios. The manual for the assessors provides the rubric for scoring the portfolios and all of the forms and strategic information necessary for assessing the portfolios.

Professional Display Of Instructional Competencies With IEP Students

Oregon's schools have always ranked among the top five states in the nation in the area of mainstreaming students with IEP's into the regular classroom. Recent inclusion efforts by Oregon schools have resulted in an even higher percentage of students with IEP's spending all or most of their school day in the regular classroom. The typical Oregon elementary classroom teacher now has from three to five students with IEP's in her/his class.

As Oregon investigates the viability of using Professional Portfolios to encourage professional growth of its teachers, a key question arising is how will the regular classroom teacher use the Professional Portfolio to reflect teaching competency with students who are on IEP's?

The areas in which teaching competencies are assessed for licensure are stipulated in the Oregon Administrative Rules, Chapter 584 Regulations and are: planning for instruction; establishing a classroom climate conducive to learning; implementing instruction; and evaluating pupil achievement. These competency areas will be the focus areas when the BTAM Portfolio Assessors evaluate the BTAM Professional Portfolios. By addressing these four areas, the regular classroom teacher will be able to reflect his or her teaching competency with the IEP students in the classroom. The type of adaptations that the classroom teacher can make to meet the learning needs of students with IEP's, according to Jackson, et al. (1993), can be grouped into four areas: environmental, material, presentation, and assistance by others.

A listing of adaptations made by classroom teachers to fit and meet the needs of their students with IEP's was gathered from the Oregon Supported Education Study conducted by the Oregon Department of Education and Portland State University during 1991-1993 (Arick, et al., 1993). These teachers suggested adaptations and suggestions about how they can be shown on the Professional Portfolio.

Competency Area: Planning for Instruction

Environmental Adaptations

Teachers in the Oregon Supported Education Study reported spending more time in planning and setting up learning stations and activity-based experiences in which students used more hands-on materials. Professional Portfolios could reflect this planning by showing the lesson plans and daily schedules which have been developed.

Material Adaptations

Examples provided by the classroom teachers included using graph paper to line up a math problem, enlarging pages for easier reading, highlighting materials, and adapting materials to reflect the IEP student's reading level. A teacher's Professional Portfolio should include samples of these adapted materials.

Presentations Adaptations

Adaptations in presentation included increasing the use of visuals, moving about the room more, and decreasing lecture time with increased time spent in student-centered activities. Teachers developing Professional Portfolios find that video taping is an excellent vehicle for showcasing their individual presentation style.

Assistance by Others

Using an instructional assistant, peer buddies and volunteers effectively in the classroom requires considerable planning. Teachers preparing a Professional Portfolio can reflect that planning by including training manuals and work schedules, and showing their assistants at work with students on video tape.

Competency Areas: Establishing A Classroom Climate Conducive to Learning and Implementing Instruction

The BTAM assessors will be looking for examples from the Professional Portfolio which reflect full acceptance and participation of students with IEP's who are in the regular classroom.

Environmental Adaptations

Examples of teacher adaptations to the environment in order to meet needs of students with IEP's include clear articulation of classroom rules and behaviors expected of everyone, and repeating and reviewing rules frequently. Management systems for the whole class with careful sequencing of activities and with silent work periods intermittently throughout the day keeps students calm. Examples of management systems and rules can readily be included in the Professional Portfolio.

Material Adaptations

Ideas for material adaptation include having greater participation and feedback from students on what they want to learn, and using self-monitoring when possible. Self reflection from students regarding how they perceive themselves in this learning environment can be included in the Professional Portfolio.

Presentation Adaptations

The most common adaptation reported by teachers in their presentations was an increase in the use of small cooperative learning groups. This format increases the likelihood that the non-IEP student will serve as a model and assistant. Annotation to lesson plans and video tape is an ideal vehicle for explaining presentation adaptations made by the teacher.

Assistance by Others

Involving volunteer students and adults in effective teaching in tutorial or small group settings reflects a classroom that is meeting the individual needs of the IEP learner. Schedules and detailed instructional lesson plans used by the assistants should be shown also in short segments on video tape.

Competency Area: Evaluating Pupil Achievement

Environmental Adaptations

Many teachers in the Oregon Supported Education Study reported arranging seating patterns to accommodate students with IEP's, using more learning stations in which projects are cooperatively evaluated; using more student self-evaluation, and carrying out the philosophy of not measuring students against other students. Narrative description of these efforts, along with video tape is an effective way of showing these adaptations in the Professional Portfolio.

Material Adaptations

Teachers also reported using record/tape books, less writing and more verbal responses for their students with IEP's; and used shortened tests by selecting key questions. Use of student portfolios also was reported as an effective means for evaluating the work of all students, and also those with IEP's. Samples of student effort, along with the formal Work Sample could be included in the Professional Portfolio.

Presentation Adaptations

The use of worksheets which require a minimum of writing; using study guides; accepting alternate forms of information sharing such as art; and setting up tests so that they can be retaken until passed were suggested. Also, grading on individual progress and effort, and having a closely monitored tracking system for assignments and due dates were reported by these teachers. All of these types of adjustments could be described in the Professional Portfolio.

Assistance by Others

Individual evaluations can be set up for the student with IEP by using teaching assistants, volunteers, etc. to administer and/or read quizzes and tests to students who can dictate responses. Showing a sample of these on video tape is an excellent way for the teachers to show adaptations they are making in the area of student assessment.

Reflection

The many suggested instructional adaptations provided by the classroom teachers participating in the Supported Education Study show that experienced regular education teachers with the support of special education teachers are making many easy to implement, but effective adaptations to their instruction in order to accommodate students with IEP's. Teachers preparing Professional Portfolios will find that planning and instructional adaptations they make can, with some forethought, be readily reflected in their Professional Portfolio. The efforts made by teachers to meet the needs of their IEP students do lend themselves to the Professional Portfolio and quite adequately reflect the teachers' instructional competency in the four areas in which teachers are assessed.

Conclusion

The State of Oregon has launched the use of the portfolio to assess the professional performance of teachers in the classroom setting. Through the Beginning Teacher Assessment Model (BTAM) Pilot Study, Teacher Standards and Practices Commission is researching the portfolio for better evaluating teachers and providing professional growth plans before final licensure. As part of the study, researchers will examine how new teachers address students with disabilities in planning and implementing instruction, establishing a classroom conducive to learning, and assessing pupil achievement. A prominent concern in the study will be the regular classroom teacher's demonstration in the Professional Portfolio on how he or she reflects upon teaching students who are on IEP's.

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Student Research Proposals: Opportunities
to Extend the Knowledge Base
Part I of III

Observing Teacher Behavior: An Efficient Empirical Method of Generating Hypotheses About Student Problem Behavior in General Education Settings

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ONE OF THE MANY CRISES FACING THE AMERICAN PUBLIC SCHOOL SYSTEM IS THE INCREASING numbers of students with behavioral disorders (BD). Center and Kaufman (1993) wrote that since the passage of Public Law 94-142 in 1975, special education services for students with BD increased from 0.54% to approximately 0.99% of the school-age population. The U.S. Department of Education (1990) reported that the prevalence of students with BD was 1.2 to 2%, while Kazdin (1989) regards a range of 6 to 10% as a more accurate estimate. Not surprisingly, the increased numbers of students with BD has been linked with (a) increased stress and burnout among teachers of students with BD (Zabel, Boomer, & King, 1984), (b) increased physical confrontations between teachers and students (Strain & Ezzell, 1978), (c) teachers "watering down" the curriculum so as not to provoke student problem behaviors occasioned and maintained by escape from hard academic task demands (Carr, Taylor, & Robinson, 1991), (d) teachers' diminished ability to provide effective classroom management and instruction (Walker & Bullis, 1990), and (e) a high attrition rate among teachers of BD students (George, George, & Grosenick, 1990).

The educational system is intolerant of students with disruptive behaviors (Gersten, Walker, & Darch, 1988; Ritter, 1989; Safran & Safran, 1984), going so far as to pursue legal channels to reduce or deny specialized services for students handicapped by their behavior (Nelson, Rutherford, Center, & Walker, 1991; Walker & Bullis, 1990). While working with students with BD is a formidable and exhausting task, excluding students with BD from specialized services only puts them at further risk for poor peer relations, dropping out of school, juvenile delinquency, and adult maladjustment (Patterson, Reid, & Dishion, 1992; Walker, 1993). Long (1983) stated that the key issue is "... whether the schools, and in the final analysis society, would be better served if all children who represent aggressive, disruptive behavior, regardless of how they were labeled, received special attention and help early in their lives" (p. 53). Intervening early with students "at-risk" of developing BD means that educators and psychologists must first use valid behavioral screening and rating instruments to identify students in need of potential services. While exemplary screening/diagnostic instruments such as *Systematic Screening for Behavior Disorders* are available (e.g., Walker, Severson, & Haring, 1985; Walker, Severson, Nicholson, Kehle, Jenson, & Clarke, 1994; Walker, Severson, Stiller, Williams, Haring, Shinn, & Todis, 1988), current issues and practice in the assessment of BD remain controversial, complex, and discriminatory toward culturally diverse learners (Sugai, Maheady, & Skouge, 1989; Walker & Fabre, 1987). Moreover, research on the assessment process has focused mainly on the identification of students with BD rather than attending to assessment for intervention; that is, developing assessment strategies that lead directly to treatment recommendations (Hawkins, 1979; Walker & Fabre, 1987).

Functional analysis has been advanced as an approach that links data directly to the design of individualized treatment for academic and social behavior problems (Carr, Robinson, & Palumbo, 1990; Iwata, Vollmer, & Zarcone, 1990; Sugai et al., 1989; Wolery, Bailey, & Sugai, 1988). Moreover, researchers (e.g., Iwata et al., 1990; Mace, Lalli, & Pinter-Lalli, 1991) indicate that identifying the antecedent and consequent variables that occasion and maintain problem behavior leads to improved treatment results over approaches that do not conduct a pretreatment functional analysis. At issue, however, is the generalizability of experimental functional analyses conducted in analogue settings to the natural environment (Iwata et al., 1990).

In response, descriptive (correlational) methods (e.g., A-B-C assessment, questionnaires, interviews) have been combined with experimental approaches to successfully treat problem behavior in natural settings (Mace & Lalli, 1991; Sasso, Reimers, Cooper, Wacker, Berg, Steege, Kelly, & Allaire, 1992). Another descriptive method is taken from the child effects literature (e.g., Bell & Harper, 1977; Carr, Taylor, & Robinson, 1991) which demonstrates that "a child's problem behavior influences adults' interactions with the child" (Taylor & Romanczyk, 1994, p. 252). Researchers have noted that child-adult interactions can affect teachers' instructional behavior, such as when student problem behavior mediates the amount of attention teachers give to students (Carr et al., 1991; Taylor & Romanczyk, 1994).

Taylor and Romanczyk (1994) suggest that teachers interact more frequently with students exhibiting problem behavior maintained by attention and, conversely, teachers interact less frequently with students exhibiting problem behavior maintained by escape factors. Their thesis was that measuring the amount of teacher attention distributed among students would lead to empirically-based hypotheses about the function of students' problem behavior. By observing and recording the amount of teacher attention, Taylor and Romanczyk (1994) felt they could develop a descriptive method which was more efficient, required less expertise, labor, and fewer resources than other descriptive approaches. In Phase 1 of the authors' study, they observed the amount of teacher attention distributed among a small group of students with problem behavior. Based on the descriptive information, functional hypotheses were developed for each student's problem behavior. In Phase 2 of the study, a brief functional analysis (Cooper, Wacker, Sasso, Reimers, & Donn, 1990) was conducted to verify the accuracy of the hypotheses developed in Phase 1. The results of the study demonstrated that observing the amount of teacher attention delivered to students with problem behaviors could lead to accurate hypotheses about their problem behavior.

The current educational zeitgeist of inclusive schools means that general education teachers will need increased consultative support for students exhibiting disruptive behaviors in their classrooms (O'Neill, Williams, Sprague, Horner, & Albin, 1993; Sugai & Horner, 1994). Best practice in the treatment of BD is an accurate functional assessment and analysis of environmental conditions occasioning problem behavior (Horner, O'Neill, & Flannery, 1993). However, to ensure that school personnel continue to use effective behavioral support tools once consultation ends, the clinical tools must have good contextual fit with the skills, schedules, resources, and values of individuals implementing the devices (Horner, 1994). The descriptive approach taken by Taylor and Romanczyk (1994) represents a step toward accomplishing this goal, but needs to be systematically replicated and extended (validated) in general education settings with "at risk" students (i.e., students not yet identified for specialized services) before its use can be recommended as a validated approach.

Purpose of Proposed Research

The purpose of this study stems from the current support for the use of multiple functional assessment methodologies in generating hypotheses about the variables occasioning and maintaining problem behavior (Mace & Lalli, 1991; Sasso, Reimers, Cooper, Wacker, Berg, Steege, Kelly, & Allaire, 1992). While multiple functional assessment (descriptive) strategies may be the recommended approach, practitioners (e.g., teachers, school psychologists, counselors) in general education settings still face enormous time, resource, and training barriers that may restrict the use of *several* descriptive methods in addition to conducting an experimental analysis. A more efficient method (i.e., one that requires less time and labor to implement) may be found by observing and recording the amount of attention delivered by teachers to students exhibiting problem behaviors. By validating the functional assessment approach of Taylor and Romanczyk (1994), practitioners will have a "user-friendly" strategy that supports individualized treatment for students with behavioral challenges in general education settings.

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Student Research Proposals: Opportunities
to Extend the Knowledge Base
Part II of III

The Use of Functional Assessment in Research on the Effects of Attention from a Peer Tutor

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PEER ATTENTION MAY BE A CRITICAL FACTOR IN THE MAINTENANCE OF CHILDREN'S challenging behaviors at school (Lewis & Sugai, 1994). More research is needed on ways to teach children how to reinforce the appropriate, rather than the inappropriate, behavior of others (Kaplan, 1992; Sugai & Chanter, 1989). The skillful use of attention is important in many interpersonal relationships, such as among friends and coworkers, and within families. For example, antisocial behavior in children could be reduced if their parents knew how to use social attention consistently in managing children's inappropriate behaviors and in reinforcing appropriate behaviors (Patterson, Reid, & Dishion, 1992). In schools, peer attention may determine the success or failure of tutoring and cooperative learning experiences for children who have behavior problems.

Tutoring is generally recognized as a valuable academic intervention (Cochran, Feng, Cartledge, & Hamilton, 1993; Greenwood, Carta, & Hall, 1988) and as a strategy that may facilitate the inclusion of students with disabilities in general education (Fulton, LeRoy, Pinckney, & Weekley, 1994; Kamps, Barbetta, Leonard, & Delquadri, 1994). Tutor training has been recommended as a means of teaching interpersonal skills needed in future family situations (Strayhorn, Strain, & Walker, 1993). This section describes one aspect of a proposed project to train tutors to use social attention in reinforcement and extinction procedures to manage the problem behavior of another child.

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The Relevance of Functional Assessment

The aspect of the proposed project that may be of particular interest to teachers is the use of functional assessment in selecting participants. This is because teachers can use functional assessment procedures in planning behavior management interventions (Cooper, Peck, Wacker, & Millard, 1993; Foster-Johnson & Dunlap, 1993; Horner, O'Neill, & Flannery, 1993). Assessing the function, or purpose, of a behavior is now considered an essential step in the development of effective interventions (Mace & Roberts, 1993). Since the project involves teaching the tutors to manipulate social attention, it is important to know if social attention is a relevant factor for the children who will be tutored. Manipulating social attention would not be a logical intervention for a tutee whose problem behavior was maintained by escape from the tasks assigned in the tutoring context.

What is Functional Assessment?

Functional assessment is a process of obtaining information about interactions between environmental factors and an individual's behavior (Dunlap et al., 1993). The term may be used to refer to a wide range of methods of collecting this information (Horner, 1994). Important environmental events include (a) reinforcers that maintain the behavior of interest, (b) antecedent events that signal the time when the behavior is likely to occur, and (c) contextual conditions that are associated with the behavior (Dunlap & Kern, 1993, Kennedy, 1994).

Descriptive Analysis Procedures

Following a precedent set by Durand and Carr (1992), functional assessment will be used to select children who would be likely to benefit from the planned intervention. The methods used to conduct the assessment, however, will be those recommended by Arndorfer, Miltenberger, Woster, Rortvedt, and Gaffaney (1994). The results of research conducted by Arndorfer et al. (1994), which compared several methods of conducting functional assessments in applied settings, indicate that a behavioral interview such as the one in O'Neill, Horner, Albin, Storey, and Sprague (1990), combined with direct observations using a traditional antecedent-behavior-consequence (A-B-C) format (Bijou, Peterson, & Ault, 1968), is likely to be an adequate functional assessment. In the "A-B-C" approach, "A" stands for antecedent, "B" for behavior, and "C" for consequence. An A-B-C chart has three columns, one for each of the letters. The target student's behaviors are noted in the "B" column and the environmental events preceding and following the student's behaviors are recorded in the other columns. As this record of observations continues, patterns may become apparent. (For examples and sample forms, see Sugai & Tindal, 1993.)

Behavioral interviews provide information about the behavior of interest, such as (a) times when it is, and is not, likely to occur, (b) what usually happens before and after the behavior occurs, (c) people who seem to be involved, and (d) suggestions for alternative responses (O'Neill et al., 1990). In a classroom setting, interviewing the student whose behavior is to be changed, in addition to his or her teachers, may be advisable (Kerns, Childs, Dunlap, Clarke, & Falk, 1994).

The simple combination of interviews and direct observations is a type of descriptive analysis, and it is a practical approach to functional assessment because this type of assessment can be completed in a relatively short time. Even if a decision is made later to collect more information, the results of the descriptive analysis are valuable as a basis for generating hypotheses for an experimental, or functional analysis (Lalli, Browder, Mace, & Brown, 1993).

Experimental Analysis

The term "functional *analysis*" refers specifically to experimental analysis (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982). Although it is possible to use only descriptive data to determine the function of a behavior, an experimental analysis is often considered an "important component of the functional assessment process in which the identified variables are directly manipulated in order to verify or clarify the hypothesized relationships" (Dunlap et al., 1993. p. 276). If the interviews and direct observations do not clearly indicate that social attention maintains the problem behavior, arrangements will be made for a functional analysis.

A brief functional analysis procedure that may be suitable for classroom use has been developed (Cooper & Harding, 1993). Potentially important factors such as task difficulty and social attention are varied, one factor at a time, during several alternating, short (e.g., ten minute) sessions to see if the frequency of the problem behavior changes in a predictable manner.

Summary of Planned Functional Assessment

The functional assessment would begin with teacher and student interviews to identify environmental factors related to the problem behavior in situations where one child tutors another child. Information from the interviews would be combined with data from direct observations for a descriptive analysis. If more information is needed, an experimental analysis, in the form of a brief functional analysis, will be conducted to test hypotheses based on the descriptive analysis. The main purpose of the functional assessment is to determine if students are likely to benefit from participation in a project in which tutors are trained to use social attention to reinforce appropriate, rather than inappropriate, tutee behavior.

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Professional Reading Patterns and Preferences: Bridging the Gap Between Research and Practice

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Background and Importance

Many legislators, policy makers, and teachers believe that educational research contributes little to the daily practice of teaching (Kaestle, 1993; Kauffman, 1987; Keogh, 1994; Tawney & Gast, 1984). Fuchs and Fuchs (1990) noted:

> Contributing to the view that education research is unimportant is that researchers involved in interesting and important school-based projects do not often write for teachers; many teachers do not read what is written for them; and the press typically does an insufficient job of covering education. (p. 106)

Evidence for this assertion is supported, in part, by the professional reading patterns of special education teachers.

For example, De Pry (1994) surveyed 70 special education teachers and found that only 21% of the respondents read special education research journals on a regular basis. In contrast, over three-quarters of the sample indicated that their professional reading consists mostly of popular classroom-based periodicals (i.e., *Learning, Instructor*, and *Teacher Magazine*). These findings support previous research that indicates that teachers read more pragmatic and less research-oriented materials (Davis & Butler, 1986; Fuchs & Fuchs, 1990; George & Ray, 1979; Mour, 1977).

The need for increased reliance on empirically validated methods to inform practice is especially acute for teachers of students that have emotional and behavior disorders (EBD). Steinberg (1991) reported data from a large descriptive study that indicates that many programs that serve students with EBD are not using effective and empirically validated practices. For example, she noted that the typical school day was pervaded by boredom and

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apathy, ineffective teaching strategies, ineffective use of behavioral technologies, and lack of administrative support for the special education teacher.

The statistics for students that have been identified as EBD are revealing. For example, 22% of these students will be arrested before they leave school and 35% will be arrested within a year or two after leaving school (Chesapeake Institute, 1994). In addition, nearly two-thirds of all EBD students function below grade level (Steinberg, 1991). Moreover, general education teachers are reporting increased incidents of physical assault, weapons at school, gang violence, and substance abuse, which leads to unsafe school environments and decreased teacher and student opportunities to focus on the learning process (Colvin, Kameenui, & Sugai, 1993). There is evidence that general education teachers will continue to voice similar concerns as schools adopt more inclusive environments for students that exhibit severe behavioral challenges (Leo, 1994).

Clearly, there needs to be an increased emphasis on bridging the gap between research and practice through effective research dissemination. Cooke, Test, Heward, Spooner, and Courson (1993) stated:

> Considerable concern regarding the gap between educational research and practice has been expressed for many years. A common message is that we need to find better ways of translating the results of research into more effective practice and of training teachers to access, interpret, and use research in ways that will allow them to incorporate findings into their unique settings. Teachers can relate to research as consumers, producers, or both. Few would argue against the notion that teachers should keep abreast of developments in their professional practice by reading published research articles or attending professional conferences where reports of empirical studies are presented (p. 319).

Researchers have traditionally used special education journals and conference presentations to communicate the results of research and demonstration projects. But the usefulness of the research is often limited by the research background of the teacher (Prehm, 1976), social and educational validity (McKee, Witt, Elliott, Pardue, & Judycki, 1987), and practical issues such as time, journal availability, and cost (De Pry, 1994). A review of the research indicates that there is a gap in the literature related to the identification of the specific features that special education teachers attend to when they choose to read special education journals and how these preferences might set the occasion for changes in teacher behavior in the classroom.

The Basis for a Proposed Solution

Horner, Day, Sprague, O'Brien, and Heathfield (1991) have demonstrated that using interspersed requests can reduce aggression and self-injury during instructional periods. This research-validated strategy has important implications for teachers who work with students that have emotional and behavioral disorders. The results from this research were published in two journals: *Teaching Exceptional Children* (Sprague & Horner, 1990) and the *Journal of Applied Behavior Analysis* (Horner, Day, Sprague, O'Brien, & Heathfield, 1991). These articles are similar in content, but differ significantly in style, length, and difficulty. The former has a research emphasis, while the latter has a practitioner emphasis. The similarities and differences inherent in these articles provide a unique opportunity to study the critical features teachers attend to when reading research and practitioner-oriented special education journals.

Procedure

The articles will be presented to two randomly assigned groups of special education teachers to determine what features the teachers attend to when reading and how the presentation of the material might influence teacher behavior in the classroom. The teachers will receive a questionnaire after completing the assigned reading and be queried about the specific features of the article that they found important. In addition, demographic information will be examined to determine if there is a relationship between the teachers' highest level of schooling and special education journal reading preferences and rates (Cooke, Test, Heward, Spooner, & Courson, 1993). Survey methods that incorporate closed- and open-ended questions will be used to ascertain teacher preferences concerning style, format, and utility.

Conclusions

Bridging the gap between research and practice is being addressed at a variety of levels in the field of special education (Carnine, 1994). This proposed research will add new data to an emerging literature on the professional reading patterns of special education teachers. An examination of the specific features that teachers attend to when reading will provide data that can assist researchers, teacher trainers, staff developers, and publishers in creating improved methods of communicating research in a manner that has a greatest likelihood of influencing the practice of teaching.

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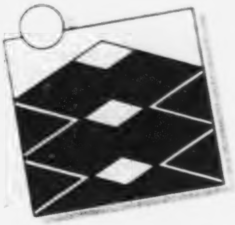
Section IV



ORGANIZATIONAL PERSPECTIVES

School-Wide Discipline: Procedures for Managing Common Areas

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ACROSS AMERICA, THE QUIET, CONTROLLED, SAFE, AND WELL-ORGANIZED SCHOOL OF EARLIER decades was taken for granted. Today the scene is markedly different. In all too many cases, schools have become disorderly, unsafe, and disruptive to the teaching and learning process. Indeed, incidences of serious problem behavior such as antisocial behavior, challenging behavior, defiance, noncompliance, aggressive behavior, and acting-out behavior have reached crisis proportions (Bullock, Reilly, & Donahue, 1983; Evans & Evans, 1985; Hranitz & Eddowes, 1990). The National Center for School Safety reports that 28,200 students and 5,200 teachers are physically attacked in our nation's secondary schools each month, and 19% of these victims require hospitalization (Greenbaum & Turner, 1989). Further, students and teachers report that they are seriously concerned for their safety at school. Approximately 8% of junior and senior high school students report missing school out of fear of the conflict and aggression occurring in the classroom (Hranitz & Eddowes, 1990). In addition, almost 5 million students eligible for special education services or the 304,626 teachers employed to serve these students (OSEP, 1992). While policy makers and educators are grappling with these issues, Cotton (1990) identified a number of effective school practices that have had positive results in addressing these problems and in creating a safe learning environment for their staff and students. The purpose of this paper is identify, describe and illustrate one of these practices, in particular procedures for managing common areas in school settings.

We have identified five steps for addressing and implementing a management plan for problem settings in a school followed by a case study with preliminary results: (a) establishing a building team to guide the development, implementation and maintenance of the plan, (b) conducting a systematic needs assessment of the ecological arrangements and routines, (c) revising the ecological arrangements, (d) revising and establishing the common area routine, (e) implementing the revised ecological arrangements and common area routines, and (f) case study with preliminary results.

Establishing a Building Team

The first step is to establish a building team to direct the development, implementation, and maintenance of the plan for addressing common areas in the school. Although the building team will direct and guide the process, it needs to be a joint venture with all staff at all levels working together. Achieving consensus on the ecological arrangements and common area routines is essential to insure proper implementation and maintenance of the plan.

The following factors should be considered when forming a building team. First, the composition of the team should be considered. Efficient teams are generally comprised of eight members (or less) that are representative of the entire staff. Broad representation is necessary to help achieve consensus among the school staff. Broad representation is also critical because each staff member will bring important information necessary for the development of effective ecological arrangements and common area routines. For example, it is difficult for teachers to fully understand all of the factors associated with the school lunch program without input from a staff member who is intimately involved with the program. Other factors to consider when establishing a building team include the length of term for team members and how team members will be selected. Because the ecological arrangements and common area routines are continually refined, a 2- to 3-year term is recommended with a proportion of the team members rotating off each year to insure continuity from year to year. There are a number of options for selecting team members. The process should the standard practices for establishing other building teams. Some options for selecting members of the building team include: (a) administrative appointments; (b) call for volunteers; (c) staff nominations; (d) election of team members; and (e) some combination of these options.

The overall responsibility of the building team is to direct the development, implementation, and maintenance of the ecological arrangements and common area routines. The building team would have the following responsibilities and general activities: (a) attend all planning meetings; (b) identify current ecological arrangements and common area routines; (c) evaluate effectiveness of current ecological arrangements and common area routines; (d) revise/establish ecological arrangements and common area routines; (e) field-test revised or new ecological arrangements and common area routines that are being considered for implementation; (f) actively communicate with staff members regarding the activities of the building team; and (g) conduct staff meetings to ensure and evaluate the implementation and maintenance of the ecological arrangements and common area routines.

Conducting a Needs Assessment for the Common Areas

A needs assessment is used to assess current ecological arrangements and common area routines. This assessment will provide school staff with a more accurate picture of current practices, and will help to pinpoint problems in a way that leads to solutions. The most accurate picture of what is happening with current ecological arrangements and common area routines can be obtained by (a) collecting and analyzing data from multiple sources, and (b) involving all relevant parties such as students, parents, teachers, substitute teachers, support staff, and administrators.

Methods for conducting the needs assessment include surveys, interviews, observations, and reviews of records. Staff need to be assured that their responses will be treated confidentially. Examples of measures to assess the current ecological arrangements and common area routines include:

1. *Survey instruments.* Surveys/questionnaires can be used to assess current practices and to establish development pri-

orities. These may be open-ended or structured instruments.

2. *Interviews.* Individuals can be invited to participate in individual or group interviews to discuss current practices and their suggestions, as well as to clarify or expand on responses to a survey.

3. *Observations.* Areas of the school can be observed by members of the building team. Observation data provide information about what is working well, in addition to identifying those practices that need improvement.

4. *Reviews of records.* Archival school data can be reviewed to provide information on how well current practices are working, and the need for revising the record keeping system.

Figures 1 and 2 present checklists for determining the adequacy of the existing ecological arrangements and common area routines for the common areas of the school, respectively.

CHECKLIST FOR DETERMINING THE ADEQUACY OF EXISTING ECOLOGICAL ARRANGEMENTS

Yes No 1. Unsafe physical arrangements are eliminated or adjusted.

√ Objects or other structures that obstruct supervision are removed.
√ Barricades are used to limit access to areas that are not easily observed or that are off-limits to students.

Yes No 2. The density of students (numbers and space/distance) is reduced as much as possible?

√ All entrances and exits to a given area are utilized.
√ The age spread of students (balance of younger students with older ones) is increased as density increases to more fully utilize a given area.
√ Space/distance between groups/lines/classes are adequate (10'-15').

Yes No 3. The travel distance and wait time is reduced as much as possible?

√ Entrances and exits to a given area reduce travel distance.
√ The density of students is decreased as travel distance increases (e.g., staggered start times).
√ Wait time is short.

Yes No 4. Are there clear and stable signals for behavioral expectations?

√ Physical signals for expected positioning of students (e.g., indicators where to line up).
√ Visual signals for expected behaviors (e.g., exit/entrance signs, posters depicting expected behaviors for a given area).
√ Auditory signals for expected behaviors (e.g., bells).

Figure 1. Checklist for existing ecological arrangements.

CHECKLIST FOR IDETERMINING THE ADEQUACY OF EXISTING COMMON AREA ROUTINES AND PRACTICES

Yes No 1. Are the behavioral expectations for each area of the school established?

- √ There is consensus among staff/community on behavioral expectations.
- √ Behavioral expectations are stated objectively.
- √ Behavioral expectations are reasonable and limited in number.

Yes No 2. Is there an implementation plan to insure staff, students, and parents understand the behavioral expectations?

- √ Behavioral expectations are written down.
- √ Teaching plans for the behavioral expectations are developed (Appendix A presents an abbreviated outline of a teaching plan).
- √ 180 day implementation plan is established to insure students understand and can perform the common area routines.
- √ Staff understand their responsibility in insuring students and parents understand the behavioral expectations.

Yes No 3. Is there is adequate supervision?

- √ Supervisors are trained.
- √ Ratio of supervisors to students is adequate to promote positive social behavior.
- √ There are established patterns of supervision.
- √ Natural supervision is utilized (e.g., natural flow of parents, staff, etc. are used to promote positive student behavior).
- √ Students are reinforced for exhibiting appropriate behavior.

Yes No 4. Are there effective reactive strategies in place to address minor problem behavior?

- √ Reactive strategies are reasonable, decisive (limited warnings), and provide students an opportunity to try again.
- √ Reactive strategies reduce opportunities for students to manipulate or engage staff.
- √ Designed to reduce the need for record keeping and communication.
- √ Continuum of structures is in place to address chronic minor problem behavior.
- √ Efficient record keeping and communication system is established to monitor chronic minor problem behavior.

Yes No 5. Are there a continuum of structures in place to address serious or challenging problem behavior?

- √ Behaviors warranting office referral are delineated.
- √ Efficient record keeping and communication system is established to monitor serious or challenging problem behavior.
- √ Progressive levels of discipline that are focused on increasing levels of support for the student and staff.

Figure 2. Checklist for existing common area routines and practices.

Revising the Ecological Arrangements

Based on the results of the needs assessment, modifications may need to be made to the ecological arrangements in the common areas of the school. Typically, two general areas of ecological arrangements need to be considered: (a) eliminating or adjusting unsafe physical arrangements; and (b) improving the scheduling and use of space.

Eliminating or Adjusting Unsafe Physical Arrangements

Eliminating or adjusting unsafe physical arrangements involves actual structural changes and adjustments in the use of the space. Changes such as removing foliage, using barricades, or changing the designated use of an area (e.g., relocating gathering locations to areas with high levels of supervision and natural surveillance) can often be made in the school grounds. School grounds problems relate to the overall site plan. Although each site plan will be unique, the following are examples of the four most common problems. First, campus borders are often poorly defined. Even when fencing is used, it is sometimes obscured by foliage that shields the campus from natural surveillance. Second, undifferentiated campus areas (e.g., hidden corner of playground) present opportunities for informal gathering areas that are out of sight from supervision. These areas may not only be used for prohibited activities, but may increase the incidence of problem behavior and victimization. Third, building layout and design often produce isolated spots (e.g., end of hallway) where students will gravitate and either commit prohibited activities or expose themselves to victimization. Finally, bus loading areas are often in direct conflict with traffic flow or may create conflict and congestion with automobile parking areas.

Improving Scheduling and Use of Space

One of the most effective strategies for promoting positive social behaviors centers on improving the scheduling and use of space. For instance, it takes longer to get groups through the lunch line because of congestion. In addition, the congestion may provide occasions for more physical and undesirable interactions between students. For example, one class may be passing through a doorway to exit the cafeteria while another class may be entering the cafeteria at the same time. Separating the cafeteria entrance and exit by space, or staggering the start and end of the lunch period can help control movement in and out of the area. Although there are no set rules for scheduling and using space, the following guidelines are recommended: (a) reduce the density of students by using all entrances and exits to a given area, increasing the space between groups, lines, and classes, and increasing the age spread of students as the density of students increases; (b) insure that wait time is kept at a minimum; (c) reduce travel time and distance as much as possible; and (d) use physical signs to control movement such as clearly marked transition zones to indicate where to stop and wait.

Establishing Common Area Routines

The second major area examined for common areas in a school is the routines. Based on the needs assessment, the building team identifies common area routines that promote positive social behavior and minimize problem behavior. The process of establishing these routines includes: (a) identifying the specific routines; (b) task analyzing the routines; (c) teaching and maintaining the routines; and (d) responding to problem behavior.

Identifying the Routines

Effective common area routines help to establish appropriate behavior, reduce problem behavior, and eliminate wasted time. The critical step is to identify the purposes of a specific common area and then design a routine to achieve these purposes. Routines typically need to be designed for three areas: (a) transitions; (b) administrative procedures; and (c) setting or activity requirements. Figure 3

Transitions	Administrative	Setting/Activity
• Arrival • Dismaissal • Hallways • Bicycles • Lining up	• Fire drill • Office communication • Procedures if sent to office for misbehavior	• Cafeteria • Recess (indoor and outdoor) • Restroom • Safety Patrol • Extracurricular • Assembelies • Bus

Figure 3. Routines for common areas of the school.

presents some examples of routines that fall under each of these areas.

Task Analysis of the Routines

A task analysis of the routines for the common areas is used to specify in a precise manner the behaviors required by students in the common area. These behaviors should be discrete, sequential and observable. Many school staff presume that students know the common area routines. It is our experience that these routines need to be systematically designed and taught. Before writing up the task analyses for the common area routines, the building team members should look at information gained from the needs assessment as well as try the common area routines a few times themselves. They should become aware of different ways the common area routines can be done. Think about the staff's and students' needs, then select the behaviors that work best for them. Note that the level of detail in the task analysis depends on the kinds of problems that have been identified, the age of the students, and the size of the group. An example of a problem area identified in the needs assessment and the revised routine is presented in Figure 4.

Teaching and Maintaining Routines

In teaching common area routines we use the same steps that are used to teach academic skills. Typically, teachers develop a lesson plan to teach a skill that involves explanations, modeling, practice, correction procedures, feedback, and review (Walker, Colvin, & Ramsey, 1995). These same steps can be used to teach a common area routine. The specific steps of a teaching plan to establish a routine are presented in Figure 5.

After teaching plans have been developed for each of the common areas of the school, instructional planning is the next step in establishing common area routines. This plan sequences which routines are taught on the first day of school, the second of school, etc. Instructional planning includes: (a) prioritizing the routines in regard to how critical they are in maintaining a proactive positive school climate; and (b) developing a calendar plan for school staff to follow.

Identifying the desired behaviors in the common areas and teaching them does not guarantee that the students will demonstrate them throughout the year. There are no short cuts to effective and efficient common area routines. School staff must not only actively plan and teach students the common area routines, they must develop a 180-day maintenance plan to insure that students will continue to follow the common area routines. A 180-day maintenance plan includes three phases. In the first phase, students are taught the routines with high levels of supervision. This supervision must continue through the first two to three weeks of school, and should

Problem Area Identified in Needs Assessment

When the students come back from recess they rush to the classroom door, talk loudly and many of the students are pushing and hitting each other. The teachers find it takes several minutes to get the students settled down in the classroom before they can start teaching.

Task Analysis of Routine for Students Coming in from Recess

The teacher meets the class at the door and signals to the students to line-up.

Students form a single line with a space between each students (no touching is allowed)

Students stay in their space for a brief second

Students stop talking and watch the teacher.

The teacher signals the students to enter class.

The students enter class walking quietly.

Students go to their desk or assigned area.

Students begin work on the math puzzle which the teacher has already placed on the overhead.

The teacher thanks the students for entering the room so quietly and for starting work so quickly.

Figure 4. Task analysis of routine for students coming in from recess.

include high rates of social reinforcement and corrective feedback if necessary. The second phase involves conducting periodic reviews during the first two months of the school session (e.g., systematic review every Monday) with reduced levels of supervision. "Booster sessions" are conducted throughout the remainder of the year in the third phase (e.g., as needed and after holidays).

Responding to Problem Behavior

While every step is taken to reinforce and establish the common area routines, problem behavior will occur. It is critical for the building team, with staff, to develop consistent strategies for managing minor and challenging problem behavior in these common areas. Although it is beyond the scope of this paper to fully describe a potential continuum of strategies for these behaviors, there are a number of factors that should be considered when developing such strategies. We recommend that the basic response to problem behavior should be corrective. That is, staff respond to the student in a constructive and positive manner so that the problem behavior is identified and the student is directed to follow the routine. Overall, school staff should respond to problem behavior quickly and directly. This

Teaching Element	Description
1. Objectives	A statement that articulates to students what they will be able to do at the end of the lesson.
2. Rationale	A statement that clearly explains to students the importance of learning a skill, including personal benefits and relevance.
3. Modeling and Concept Teaching	Techniques utilizing a clear, explicit, and appropriate range of examples and non-examples through multiple demonstrations. Shows students what the behaviors look like.
4. Role Playing	A procedure to provide practice through simulation.
5. Rehearsal	Verbal or nonverbal procedure to provide practice under controlled conditions.
6. Practice	Guided and independent activities to minimize errors and build ;earning. Gives students a chance to demonstrate their understanding of the common area routine.
7. Coaching	A process to provide immediate and specific feedback on the students' performance.
8. Feedback	Descriptive information regarding students' correct and incorrect performance of the routine.

Figure 5. Elements in a lesson plan for teaching common area routines.

implies that supervision needs to be active. Staff must be able to supervise one group of students while monitoring the rest. The ratio of supervisors to students must be adequate to promote positive social behavior. It is extremely difficult for staff who are supervising a common area of the school to be aware of what is going on if the ratio of staff to students is very low. Staff need to be clear on behaviors warranting office referrals and which behaviors they should manage themselves. Finally, staff should be given systematic training in the supervision of common areas, especially on reinforcing students who cooperate with the routines and in providing constructive correction procedures in the event of problem behavior.

Implementing and Maintaining the Ecological Arrangements and Common Area Routines

Once the needs assessment has been conducted and a plan developed, the next step is implementation. The team should have a systematic implementation plan such as: (a) the team develops a draft for the plan which is then taken to all staff for review and revision as necessary; (b) a date is set for implementation with tasks and responsibilities identified; (c) the team monitors implementation details and appropriate data is collected; (d) the team conducts review meetings with all staff to address implementation problems, to examine progress; and (e) evaluation procedures are followed.

It has been our experience that school-wide programs involving all staff often have strong beginnings but do not maintain. Some staff may lose interest, other may staff tire of bearing the responsibility for the effort, and the principal may shift the focus and energy to other concerns and activities. The team needs to have maintenance plan such as: (a) review progress behavior in the common areas on a regular basis; (b) discuss progress, concerns with staff at all staff meetings on a periodic basis; (c) conduct spot checks on behavior in the common areas; (d) provide reminders to staff on following the plan through memos, electronic mail, staff bulletins, and other school-wide communication vehicles.

Case Study and Preliminary Findings

Two primary dependent measures were used to assess the effects of the ecological arrangements and common area routines: (a) social behavior (positive and disruptive behavior during the breakfast and before school settings); and (b) disciplinary actions for the common areas of the school. Figures 6 and 7 present the percentage of intervals scored as positive behavior and disruptive behavior in the school breakfast and before school settings, respectively. The rates of positive behavior increased in both of these settings following the implementation of the school-wide program (see Figure 6). In contrast, the rates of disruptive behavior decreased in both the school breakfast and before school settings following the implementation of the school-wide program (see Figure 7).

The average number of referrals per day to the office for disciplinary action during baseline conditions for the common areas of the school was approximately 5 (range 1 to 11). Following the implementation of the

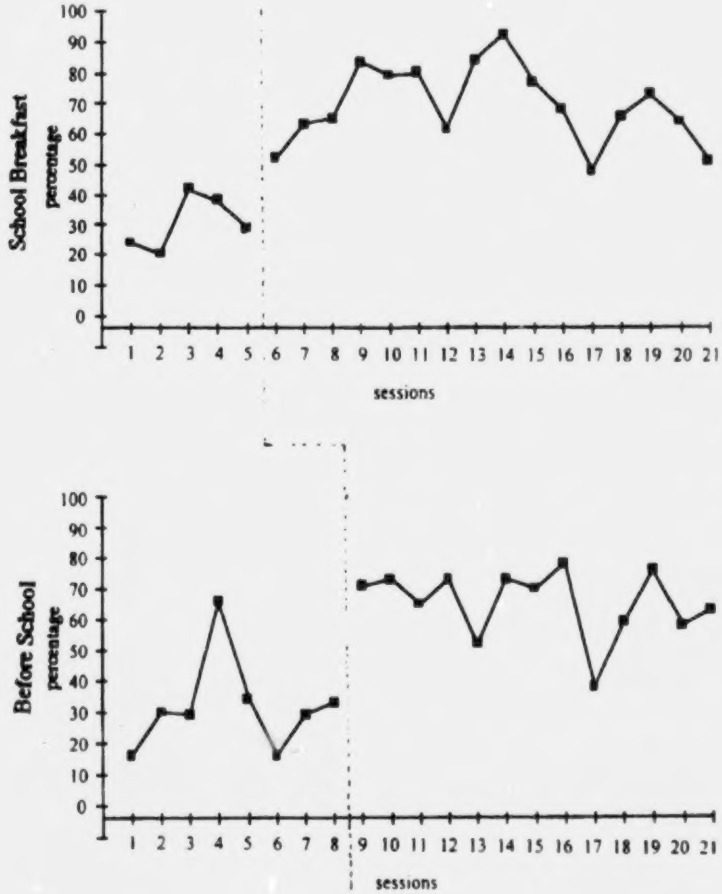

Figure 6. Rates of positive behavior during school breakfast and before school.

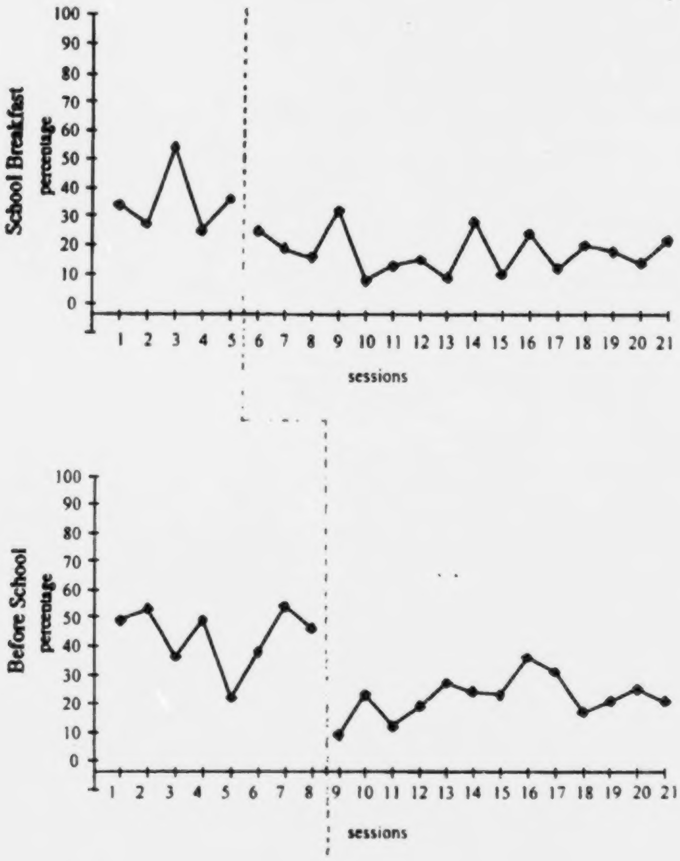

Figure 7. Rates of problem behavior during school breakfast and before school after school-wide program was implemented.

school-wide program, the average number of referrals to the office for disciplinary action decreased. The average number for the common areas of the school was approximately 1 (range 0 to 5).

Conclusion

The management of serious problem behavior or the "lack of discipline" has been identified by the public as the most persistent and possibly the most troublesome issue facing schools (Center & McKittrick, 1987; Cotton, 1990; Elam, Rose, & Gallup, 1992; Jones, 1993). Increasingly, public school personnel are facing problem behavior that occurs more frequently, significantly affects staff and student safety, and disrupts the teaching-learning process(Greenbaum & Turner, 1989). In short, our nation's schools must reconceptualize their fundamental approach toward addressing the more complex patterns of social behavior that confront them. A fundamental part of this reorientation will center on reconceptualizing school-wide discipline practices. The purpose of this paper was to describe one aspect of addressing school discipline, namely approach, designed to achieve effective ecological arrangements and routines in the common areas of the school.

A basic approach was presented which involved (a) establishing a building team to lead staff in developing a plan, (b) conducting a needs assessment, (c) revising the ecological arrangements, (d) establishing common area routines, and (e) implementing and maintaining the plan. A case study was then presented in which clear and salutary changes in the social behavior occurred for students when the ecological arrangements and common area routines were introduced. The rates of positive child social behavior increased and the rates of negative child social behavior decreased. These rates maintained throughout the experimental condition. The introduction of the program also reduced the rates of negative adult social behavior and increased the rates of positive adult social behavior. These findings suggest that ecological arrangements and routines in the common areas of the schools play a role in the social behavior of students.

Converging evidence for the effectiveness of achieving effective ecological arrangements and common area routines comes from previous work conducted on the disciplinary actions incurred with junior high school students (Colvin, Sugai, & Kameenui, 1994). In this study, a similar comprehensive instructional approach to school-wide and classroom management was implemented at a junior high school. The findings indicated that the approach significantly reduced disciplinary actions. For example, there was a 50% decrease in office referrals for problem behavior. There were also notable decreases in office conferences, suspensions, detentions, and parent meetings.

Many variables contribute to the behavior problems facing schools today which require multi-dimensional solutions or approaches. However, we have found that if staff systematically target common areas in the school by manipulating the ecological arrangements and establishing effective routines, significant gains can be made in reducing problem behavior.

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The Making of a School Community: Organizational Structure, Processes, and Goals

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ESTABLISHING SMALL LEARNING COMMUNITIES WITHIN LARGE SCHOOLS HAS BECOME A commonplace school improvement strategy, especially in inner-city school districts. The aim of these school communities is to provide a socially and academically cohesive program of study that large schools with departmentalized course offerings are unable to offer. Delineations of the school community concept have identified its core characteristics, structural antecedents, and implications for instruction (Bryk & Driscoll, 1988; Gregory & Smith, 1987; Oxley, 1994; Sergiovanni, 1994). A conceptual framework developed for the purpose of grounding a theory of school community in the ecological context of school organization (Oxley, 1994) specifies school community features on key, interrelated dimensions, and at multiple levels of school organization. The aim of the study reported here was to assess and extend the framework through research in which researchers and practitioners collaborated in planning and assessing a small learning community established within a larger high school. The research was designed to demonstrate empirically how students and teachers function in a school community and to examine the effects of the restructured organization on student academic and social outcomes.

Context of School Restructuring

School restructuring has, perhaps, been pursued most vigorously by school districts under pressure to address high rates of school failure. Large urban school districts have mandated organizing schools, particularly high and middle schools, into smaller units, sometimes called houses and charters, with specialized curricula often having a vocational theme. The aim of these mandates is to enhance achievement by creating more socially supportive and academically cohesive school environments and, secondarily, to attract a broader spectrum of students to particular schools through increased program choice.

The house system and charter school initiatives interweave decades-old reform concepts directed at creating smaller, more intimate units within large, otherwise alienating schools and at diversifying the curriculum to address student interests. In the 1960s and '70s, house systems were established throughout the country in an attempt to humanize high schools which had become very large (Plath, 1965). However, simultaneous efforts to expand the curriculum to accommodate diverse student abilities and interests undermined house systems (Oxley, 1994), because they required organizing students across houses to fill specialized courses. The promise of current house system and charter school mandates is that they aim to increase curriculum choice in the form of articulated, 4-year programs as opposed to fragmented course offerings.

The current reforms also differ from earlier counterparts in that they are frequently embedded in broader restructuring efforts to empower parents and educators closest to the teaching-learning process. Site-based management/shared decision-making mandates have focused on decentralizing authority from district to school, but are consistent with shifting school-level power to house or charter.

Missing from the current restructuring initiatives is a provision for serving students with special needs. House system and charter school formulations offer educators an order of scale and flexibility that, when coupled with the extra resources that special needs programs deliver, would allow them to be more responsive to all children. Yet, while house and charter organization is viewed as an alternative to the traditional structure of regular education, it has not been linked to reform of categorical programs such as special education, Chapter 1, and local dropout prevention programs whose effectiveness has been challenged for some time. This is especially striking in the case of special education, which operates under a policy of placing students in the least restrictive learning environment and, at the same time, has been criticized for using insupportable selection criteria which steer large, disproportionate numbers of minority children into programs (Heller, Holtzman, & Messick, 1982). Even though revisions of program guidelines have steadily increased schools' ability to serve program-eligible students within a restructured mainstream as opposed to separate classes, local districts have not seized upon restructuring initiatives as vehicles for simultaneously restructuring instruction of students with special needs.

School Community as a Unifying Concept

The interrelated reform strands described above lack a unifying conceptual framework that binds them together into a coherent program of schoolwide restructuring. In the absence of a comprehensive framework, educators tend to pursue creation of small units, decentralization of authority, and reform of categorical programs independently of one another. School communities and even site-based management are implemented as add-on programs rather than as elements of a broader scheme to transform the existing organization.

The literature suggests that school communities constitute a more appropriate form of school organization than traditional bureaucratic structure; they are less a co-existing alternative than a replacement for it (Bryk & Driscoll, 1988; Gregory & Smith, 1987; Sergiovanni, 1994). What distinguishes school communities from bureaucratic organizations is that their members are bound by personal as opposed to purely utilitarian ties. Members of a community care about one another because they share values and experiences, as well as perform practical functions for one another. Communities bestow a sense of identity and belonging and, consequently, provide a more compelling context in which to pursue education.

Further, the literature lends considerable support to the idea that school communities must be small (e.g., Bryk & Driscoll, 1988; Gregory & Smith, 1987); use a core curriculum common to all students, that is, eschew academic tracks and other student sorting devices (Bryk & Driscoll, 1988); and make collaboration among teachers, students, and parents the central driving force in the organization (Ratzki, 1989; Sergiovanni, 1994). Bryk & Driscoll's (1988) analysis of high school communities helps to clarify how a community can be homogeneous with respect to purpose and experiences, yet heterogeneous in terms of entry-level academic abilities, ethnicity, class, and gender. In sum, school community provides an overarching construct for all the reform strands identified above.

To be useful as a guide for school restructuring, the school community construct must be delineated in terms of multiple, interrelated dimensions, and levels of school organization in accord with the ecology of schooling (Eisner, 1988; Oxley, 1994). The conceptual framework presented in Table 1 specifies school community with respect to structure, process, and goal dimensions and classroom, subunit,

Table 1. School Community Structures, Processes, and Goals

Structures:
1. Smaller organizational scale: downsized district offices, smaller schools, house systems, instructional clusters;
2. Decentralized management: local community school boards, school-based management, house systems;
3. Cross-role/discipline collaborative groups: school-community partnerships, integrated social services, interdisciplinary teacher teams;
4. Bridges across temporal gaps in schooling: school transition programs, cross-year teacher-student groups; and
5. Heterogeneous instructional groups: mainstreaming programs, elimination of academic tracks and pull-out programs.

Processes:
1. Shared decision making: teachers, parents, and students help formulate policy;
2. Collaborative planning: teachers develop educational programs in consultation with other teachers, support staff, and parents;
3. Active learning/inquiry: students initiate learning; teachers formulate and evaluate new educational strategies;
4. Collaborative learning/mentoring: students engage in cooperative learning; students and teachers mentor one another, respectively; and
5. Social learning/guidance: students learn how to interact effectively and receive guidance and counseling.

Goals:
1. Mastery of core subjects, including English, mathematics, social studies, and sciences;
2. Higher-order intellectual functioning, including problem solving and critical thinking;
3. Development of nontraditional intelligences, including kinesthetic, spatial, musical, and personal;
4. Social competence; and
5. Good health.

school, and district levels. The features represent a set of mutually defining, interdependent elements; changes in elements of one dimension or level necessitate adjustments on others. Goals are not viewed as causally antecedent to structures, or vice versa, but assessment of progress toward goals can be used to make adjustments in organizational structures and processes on a continuing basis.

The structures included in Table 1 describe a school composed of small, relatively autonomous, interdisciplinary groups of staff and students working together over extended periods of time, guided by parents and administrators situated at proximal as well as more distal levels of the organization. Interdisciplinary teacher teams bring together teachers with different subject area expertise and instructional skill (regular, remedial, special education, gifted) to instruct students with diverse characteristics (gender, ethnicity, entry-level academic ability). The small, intimate, integrative nature of a school community allows teachers to recognize students' unique needs; teachers do not need to group students homogeneously in order to cope with their differences.

Shared decision-making and collaborative planning drive the work of a school community. Parents, administrators, students, and teachers together formulate school policy and curriculum and instructional plans. Students take an active role in learning by discovering answers, producing knowledge, and helping one another in the process. Likewise, teachers function as inquirers, experimenting with techniques and sometimes pursuing open-ended learning activities (Sergiovanni, 1994).

School communities recognize students as social and physical as well as intellectual beings and treat socio-emotional development as an important goal in its own right (Gregory & Smith, 1987). Even though the school community literature is less explicit about goals than structure and process, its human development perspective (Murphy, 1991) dictates the broad range of educational goals stipulated in the framework. The curriculum is designed to address the development of diverse skills: achievement in traditional academic subjects; critical thinking; kinesthetic, spatial, musical, personal, and social abilities; and good physical health.

Implementation of School Community Practices

High school staff members in a large northeastern city have been engaged in creating charter schools as part of a district-wide policy to transform every comprehensive high school into several smaller charters. Researchers at a nearby university collaborated with the staff in designing and assessing the school's first fully-formed charter. The purpose was to learn more about the practice of school community through direct participation in school change efforts, in keeping with the "action science" mode of the inquiry (Argyris, Putnam, & Smith, 1985).

The high school serves approximately 2,000 students in grades 9-12; nearly all are African-American. About two-thirds of the students meet federal poverty criteria and qualify for Chapter 1 programs. The school also has a very large special education program. Unlike the magnet high schools which draw high-achieving students from across the city as well as experienced teachers, this school, like many of the neighborhood high schools, has a history of high rates of absenteeism, dropout, and staff turnover. Two small magnet programs were established within the school to attract higher performing students. The charter school under study was designed to provide a specialized academic program for students in the mainstream.

The high school staff shaped the school community's core, including curricular themes and content, methods of remediation and promotion, and cocurricular activities. The charter coordinator assumed a leadership role in the development of these aspects of the program. The researcher role was essentially to lead staff in linking program development to the school-wide restructuring needed to support full implementation of a heterogeneous charter. Researchers made the case for, and helped solve organizational problems related to, accommodating students with special needs in the charter; creating interdisciplinary teams of teachers who provide instruction only to a group of students they share in common; and creating sufficient autonomy for the charter to permit local decision-making without outside interference. For example, for two years the house coordinator had been unable to assign teacher teams exclusively to the charter because department heads responsible for staff scheduling made assignments on the basis of teacher choice and traditional departmental requirements rather than the special needs of the new charter. In this case, researchers succeeded in elevating the resolution of this problem to a planning priority.

Another university project associated with the charter offered staff development in individualized instruction (Wang, 1994). Under this project, special education students who would otherwise be placed in a resource room were assigned to each class in the charter, and a special education teacher was assigned to work with the charter instructional teams.

Between the two projects, researchers were able to facilitate planning by providing funds to teachers for a brief planning period that occurred outside the school day, and by providing an organizing framework for the planning sessions. The charter plan that was developed during the third year of the university-school collaboration and implemented in the fourth is described below in relation to the conceptual framework.

Organizational Design

Small size, interdisciplinary collaboration, and temporal continuity were accomplished in the following ways. Approximately 300 students comprise the charter. Four-person interdisciplinary teams instruct four classes at the 9th- and 10th-grade levels. A third team teaches 11th and 12th graders, whose numbers are smaller due to transfers to other schools, assignment to other charters, or dropout. According to the charter plan, teams remain with their students for two years, but in practice only a few team members have moved up to the next grade with their students because of schoolwide staff instability.

The charter's nontracked core curriculum includes math, English, social studies, science, and African-American Studies. Chapter 1 remedial reading classes and low-level math classes which many students normally take were eliminated. Instead, a reading specialist teams with regular classroom teachers to support reading instruction in the core subjects, while the four members of the team instruct African-American Studies (formerly the reading class). In addition, special education students are mainstreamed in the program; up to three are assigned to each class.

Teachers plan collaboratively and employ cooperative, active, and social learning strategies. Teams meet twice weekly to discuss students, design curriculum units, and organize cocurricular activities. Teacher preparation periods are scheduled during the same periods to create a common planning time. Each team member serves as advisor to one class and meets with these students to discuss student progress in the program and to suggest strategies for improving performance, including scheduling a meeting with parents. Once a week, a regularly scheduled 20-minute advisory period is blocked with a double period of instruction to give teachers a large block of time in which to pursue guidance with their advisory class. Students work together in small groups for a significant amount of class time, and teachers provide opportunities for students to pursue a range of special topics in African-American Studies, including gender issues and community service.

School management has been decentralized to the extent that a charter teacher is relieved of two classes to coordinate charter staff and activities. The coordinator designs the academic program, participates in the team's planning and problem-solving sessions, and organizes cocurricular activities. The coordinator has no official supervisory function but determines how the reading and special education support staff are deployed; makes staffing decisions jointly with academic department chairs who formerly took sole responsibility for assigning teachers to classes; and is a member of the principal's cabinet.

Assessing School Community Practice and Outcomes

The present research was designed to test two propositions: (a) charter teachers and students operate in closer concordance with school community practice, that is, school community structure, process, and goals, than those who continue to function within the traditional school organization; and (b) charter students show improved school performance relative to their noncharter counterparts on measures of academic achievement, social competence, and school attendance. In order to test these hypotheses, teacher and student survey scales and school records of students' course grades were used to operationalize elements of the school community framework.

Operationalization of School Community Elements

Student Survey

The student survey contains 65 statements to which students are asked to respond on a 4-point scale indicating the level of accuracy of or agreement with the item. The items are organized into three sections concerned with school social cohesion, classroom experience, and student socioemotional competence. Each survey scale contains a mix of three to four negatively and positively worded statements. Scale reliability was quite low, due in part to the small number of items used for each scale. Also, the negatively worded statements may have confused students since they contributed little to the scale's internal consistency. Coefficient alphas ranged from 0.45 to 0.72.

Social Cohesion. Three 4-item scales were used to measure the social cohesiveness of the school. The teacher support and peer affiliation scales were adapted from the Classroom Environment Scale (Trickett & Moos, 1974). The teacher support scale measures the degree to which students felt that teachers are friendly and supportive. Peer affiliation gauges the extent to which students know and get along with each other. In addition, the student participation scale was constructed to tap students' level of involvement in school activities.

Classroom Experience. Seven scales, each comprised of 3 to 4 items, were used to measure students' perception of one of their classes; half the students were asked to describe their math class, the other half English. The scales were designed to assess the use of curricular and instructional strategies indicated in the framework. Four scales measure school community processes relevant to the classroom. The cooperative learning scale measures the extent to which students are encouraged to work with peers in undertaking class assignments. Teacher guidance taps the extent to which the teacher provides personal attention and advice on improving performance. Active learning gauges students' opportunities to play a role in determining and leading class activities. Interdisciplinary curriculum taps student perception of connections among their different courses consistent with the cross-role/discipline collaborative nature of school communities.

Three additional scales measure school community goals as they translate into classroom-level curricular strategies. The multicultural index requires students to indicate the extent to which teachers help them understand ideas from the point of view of their own culture and ethnicity, a method charter staff used to increase students' socioemotional competence. Teacher expectation measures the extent to which students feel that the teacher holds high expectations for their achievement, in line with the school community goal of having all students master a core curriculum. Nontraditional skill development measures students' perception of opportunities to pursue interests in art, music, dance, mechanics, and social interaction, also in line with school community goals. The survey did not include measures of critical thinking and physical health, since staff had not yet addressed these within the charter curriculum.

Socioemotional Competence. The student survey contains measures of two aspects of socioemotional competence, self-esteem and ethnic identity. A self-esteem subscale taken from Harter's (1987) Self-Perception Profile for Adolescents assesses global self-esteem. Two subscales of the Multigroup Ethnic Identity Measure (Phinney, 1990) measure positive identification with one's ethnic group and comfort with persons of other ethnicities.

School Records

Students' end-of-year grades in the four core subject areas common to both charter and non-charter programs were used as indicators of academic performance. Grades were coded as passing and not passing to create a uniform grading scheme across all the academic programs.

Teacher Survey

The teacher survey is a modified version of the Teacher Climate Survey (Stein, Freiberg, Waxman, & Prokosch, 1991). The instrument was designed to measure a wide range of school environment features, including school management; teachers' relations with students, colleagues, and parents; teachers' instructional methods; and use of time. Teachers were asked to respond to survey statements by indicating their level of agreement on a 5-point scale, except where noted below. Scale reliability ranged from 0.58 to 0.84.

The scales used in the present study tapped shared decision-making and different forms of cross-role/discipline collaboration. Teacher reports of their use of curricular and instructional strategies were omitted because they largely overlapped with the student measures and were more likely to evoke socially desirable responses than the latter. A 3-item scale was used to measure teachers' participation in establishing the policies and procedures that guide their work.

Interdisciplinary and Departmental Collaboration. Three-item subscales were used to measure three aspects of teacher collegiality. The consensus subscale measures the extent to which teachers share the same beliefs and values about the school's mission; professional exchange taps the extent to which teachers share ideas and views about teaching and feel they can obtain assistance when they need it; and social cohesion refers to teachers' feelings that they have friends among their colleagues. Teachers responded to these items for teachers in different academic departments and within the same department. We measured departmental as well as interdisciplinary collaboration, a posited feature of school communities, in order to examine the question of whether the charter fosters all or only some forms of collaboration.

Parent Collaboration. The teacher survey contains two measures of teachers' collaboration with parents. A 5-item mutual support scale taps the extent to which teachers feel they communicate with and receive support from parents, and a single-item measure of parent outreach gauges the amount of time that teachers spend each week contacting parents.

Extended Teacher Role. Teachers indicated the number of students they know or interact with in contexts beyond the classroom on a 5-item scale. They enumerated the students whose performance in other classes they knew about, whose home life and personal history they were familiar with, those with whom they participated in extracurricular activities, those whom they tutored outside class, and those who came to them with personal problems. The number of students reported for each item was transformed into a standardized score since the range in number of students varied greatly across items.

Study Sample

Researchers administered the student surveys in early December and again in early June. The fall and spring samples of students were combined into a single group of nonredundant students for the present analyses. All 9th and 10th graders in the charter school (n=166) and some 9th and 10th graders outside the charter (n=204) completed the forms. The non-charter group of students included roughly equal numbers of students in selective magnet (n=94) and regular academic (n=110) programs. Non-charter students were sampled from English classes since they comprised the largest and most representative group of 9th- and 10th-grade students.

Researchers gave out the survey at the beginning of a regularly scheduled class, explained that the purpose of the study was to obtain students' opinions about school and that participation was voluntary, answered students' questions as they arose, and collected the surveys at the end of the period. Teachers typically remained in the class. Only a very small number of students declined to fill out the forms; 85% and 91% of students completed all items on the survey in fall and spring, respectively.

The heads of all academic departments distributed the teacher surveys to their respective faculty in spring of 1992 and again in spring of 1993. Teachers filled out the forms at their own convenience and returned them to their department head. In all, 66% of teachers completed the form in 1992, and 63% the following year. We included only math, science, English, and history teachers in the statistical analyses in order to create comparability between the non-charter group and the charter group which contained only core subject teachers. It was not possible to form a selective program teacher sample since with only a few exceptions the teachers of students in magnet programs were the same as those of regular students. The sample obtained in the second year contained nearly none of the same teachers who responded the first year due to high staff turnover. Respondents from both years were combined into a single group for analysis because the number of teachers in the charter sample was very small.

Findings

Between-subjects MANOVAs were used to compare charter, regular, and selective students on the three sets of survey measures of social cohesion, classroom experience, and social competence. A MANOVA of year-end course performance was also conducted. The results are presented in Table 2.

Student Perceptions of School and Class

Students' ratings of the school's social environment were affected significantly by the program they belonged to, $F(6, 732)= 3.75$, $p < .001$. Univariate F-tests revealed that students' program had a statistically significant effect on peer affiliation and student involvement in co-curricular activities but not teacher support. Post hoc analyses indicated that charter students rated their environment more positively than students in both the regular and selective programs on peer affiliation ($p < .001$ and $p < .003$, respectively) and student involvement (p .02 and p .05, respectively). Charter students' mean rating of teacher support was also higher than that for other students but did not reach statistical significance.

Type of academic program also had a significant overall effect on students' ratings of classroom instruction, $F(14,702)=3.73$ $p < .001$. Univariate F-tests yielded statistically significant effects for three of the seven measures: cooperative learning, multicultural curriculum, and teacher guidance. Post hoc analyses showed that both charter and selective students reported more cooperative learning experiences than regular students (p .001 and p. 001, respectively), but charter students' ratings of cooperative learning, although higher

Table 2. Comparisons of Charter, Regular, and Selective Students on Study Measures

	Means			
Variables	Charter	Regular	Selective	F-Values
Social Cohesion-MANOVA				3.75**
Peer Affiliation	1.57	1.32	1.38	7.81**
Teacher Support	1.53	1.38	1.39	2.08
Involvement	1.90	1.71	1.73	4.44*
Classroom Instruction-MANOVA				3.73**
Teacher Expectations	2.37	2.28	2.33	0.79
Cooperative Learning	2.02	1.52	1.89	13.51**
Non-Traditional Intelligences Development	1.35	1.25	1.17	1.20
Multicultural Curriculum	1.41	1.17	1.01	5.61**
Active Learning	1.69	1.63	1.63	0.35
Interdisciplinary Curriculum	1.55	1.54	1.59	0.12
Teacher Guidance	2.27	1.89	1.94	10.47**
Social Competence-MANOVA				2.19*
Global Self-Esteem	2.19	1.96	2.15	2.40
Multicultural Orientation	1.93	1.91	2.08	2.24
Positive Ethnic Identity	2.29	2.17	2.39	3.95*
Course Passing-MANOVA				11.64**
History	.56	.49	.76	28.84**
English	.61	.41	.71	37.09**
Science	.58	.49	.69	13.51**
Math	.51	.38	.56	12.33**

** $p<.01$ and * $p<.05$

than selective students' ratings, did not differ to a statistically significant extent. Student ratings of multicultural orientation and teacher guidance were higher for charter students than for either regular ($p < .04$ and p. < 004, respectively) or selective ($p < .001$ and $p < .001$, respectively) students. Charter student perceptions of teacher expectations, active learning, non-traditional intelligence development, and interdisciplinary instruction did not differ significantly from those of other students.

Student Outcomes

Analysis of the survey measures of social competence revealed that program type had a significant overall effect, $F(6,636)= 2.19$, $p < .05$. Univariate F-tests were significant only for positive ethnic identity. The post hoc analysis revealed that selective students reported more positive ethnic identity than either charter students (p < .02) or regular students (p < .001), respectively. Student ratings of general self-regard and comfort with persons of other cultures showed the same pattern of variation across program groups as for positive ethnic identity, but the differences were not statistically significant.

In order to examine the effect of the charter on students' academic success, we included all 9th and 10th graders in regular and selective classes in the analysis. Program type had a significant overall effect on students' rate of passing the four core courses, F(8,1856)= 11.64. Univarate F-tests indicated program type had a statistically significant effect on all four measures: history, F(2,930)= 28.84, p < .001; English, F(2,930)= 37.09, p < .001; science, F(2,930)= 13.51, p < .001; math, F(2,930)= 12.33, p < 001. A larger percentage of charter students got passing grades than regular students in history (56% versus 49%), in English (61% versus 41%), in science (58% versus 49%), and in math (51% versus 38%). Selective students outperformed both charter and regular students, however, in all subject areas; 76% of selective students passed history; 71% passed English; 69% passed science; and 56% passed math.

Teacher Self-reports

Multivariate analysis of covariance (MANOVA) was used to examine differences between charter and noncharter teachers on measures of interdisciplinary, departmental, and parent collaboration. Separate analyses of covariance (ANOVAs) of shared decision making and extended teacher role also were carried out. The results of these analyses are presented in Table 3.

Charter teachers reported a higher level of participation in school decision making than their noncharter counterparts, F(1,53)=4.83, p < .05. When asked to appraise their work relations with colleagues in other departments, charter teachers rated collegial relations more positively than other teachers, F(3,49)=3.31, p < .05. Charter teachers' ratings of professional consensus, professional exchange, and social comfort were significantly higher than those of noncharter teachers. Teachers also were asked to appraise their relations with colleagues in their own department. This analysis showed that although charter teachers' ratings were higher than other teachers' ratings, the differences were not statistically significant. One might have expected that charter teachers engage in interdisciplinary collaboration at a cost to departmental collegiality. It appears, on the contrary, that teaching in the charter may require and support more collaboration overall.

Teachers in the charter reported somewhat greater collaboration with parents than did other teachers. The differences were not large enough, however, to be statistically significant. Finally, in accordance with the school community framework, charter teachers appear to have a more extended role vis-a-vis students than do other teachers in the school, F(1,48)=4.47, p < .05. Charter teachers had significantly broader contact and greater familiarity with their students.

Conclusions

Assessments of student and teacher perceptions of the school environment demonstrated that the charter more closely resembled a school community than the traditional school, including selective academic programs, on most features specified in the conceptual framework. The charter offered a more socially cohesive context for instruction, and, to a greater extent, instruction was linked to student guidance, allowed for cooperative learning experiences, and addressed students' cultural heritage. Charter teachers participated more in decision making, cross-disciplinary collaboration, and cross-role interactions with students than did other teachers.

Table 3. Comparisions of Charter and Non-Charter Teachers

Variables	Means		F-Values
	Charter	Non-Charter	
Shared decision-making-ANOVA	2.16	1.59	4.83*
Interdisciplinary Collaborative-MANOVA			3.31*
Professional Consensus	2.25	1.79	4.17*
Professional Exchange	2.81	2.22	7.57**
Social Cohesion	2.72	2.04	8.35**
Departmental Collaboration-MANOVA			2.05
Professional Consensus	2.15	1.99	0.48
Professional Exchange	3.08	2.57	6.22**
Social Cohesion	2.51	2.24	1.21
Parent Collaboration-MANOVA			1.37
Mutual Support	2.18	2.09	0.19
Parent Outreach	1.20	.77	2.74
Extended Teacher Role-ANOVA	.26	-.16	4.47*

** p<.01 and * p<.05

There were also notable gaps in school community practice. Despite charter teachers' greater interdisciplinary collaboration, their students reported no greater sense of connectedness among their different subjects than students outside the charter. This finding is consistent with our informal observations of team meetings. Teachers spent most of their time discussing students as opposed to the curriculum and strategies for integrating it. Charter students also did not appear to assume a more active role in learning than other students. This null finding may have been influenced as much by the low reliability of the active learning scale as by actual classroom experience, however.

These shortcomings may help explain why a large percentage of charter students failed courses. Even so, charter students achieved a better record of passing courses relative to students in the regular academic program. Although it seems likely that the school community practices we documented contributed to students' academic achievements, we cannot assert a causal linkage. It is doubtful, however, that preexisting differences in student achievement can explain charter students' superior performance. The charter did not use selective admission criteria and retained all students who failed courses. Moreover, the charter included special education students and was comprised almost entirely of students who were eligible for remedial reading classes. On the other hand, the better academic performance of magnet program students was clearly related to the selective criteria used to admit students to magnet programs.

More difficult to explain is the failure to validate the hypothesis that charter students would gain greater social competence as a result of school community practices. In spite of the finding that charter students felt their teachers provided more support, guidance, and opportunities to examine their cultural heritage, they reported no greater self-esteem or comfort with issues of ethnicity than other students. Perhaps, the school interventions operating here were not powerful enough to influence defining aspects of students' social identity in so short a time period.

Notes on Methodology and the Implementation Process

Methodology

Action science was used to illuminate and further delineate the practice of community schooling. Researchers played a role in the design and implementation of the charter under study; at the same time high school staff helped to operationalize the conceptual framework in terms of social learning practices and goals which had been only abstractly and more narrowly defined. While much of the recent literature on school reform includes recommendations for increased student guidance and emotional support (for example, Carnegie Council on Adolescent Development, 1989; Committee for Economic Development, 1987), less of it identifies the need for students to examine the political and social issues associated with their social identity, that is, their gender, class, and ethnicity (Meier, 1990). The high school staff with whom we collaborated in the study led us to expand our indicators of social learning and social competence to include learning about and having a positive identification with one's own subculture.

The present study, perhaps, raised more questions about the effects of social learning than provided answers. Nevertheless, raising such questions may help to maintain a focus on a core school community issue: how to address adequately students' social development in the context of school. Many inner-city school teachers and administrators, particularly African-Americans, view raising their students' self-esteem and increasing their understanding of racial issues as important educational goals. Accordingly, they have made changes in the curriculum and instruction to achieve these ends. Action scientists can play an important role in these efforts by helping educators to find the most effective strategies as well as to understand the implications of these methods for student academic success and social behavior.

Implementation

As pointed out above, high school staff were chiefly responsible for shaping the charter program. On the other hand, researchers made key contributions to both its design and implementation. In particular, Wang's project (1994) accounted for the inclusion of special education students in the charter. In addition, researchers helped charter staff overcome organizational hurdles to assigning teachers exclusively to the charter, a central requirement for full implementation. These elements of the charter probably would not have been included without the assistance of the researchers. An evaluation of district-wide progress in implementing charters supports these claims. The report identified the failure to include students in special needs programs in charters and the failure to establish full-time charter staffs as two pervasive gaps in charter formation (McMullan, Sipe, & Wolf, 1994).

Which aspects of researchers' assistance were most important? The researchers brought to the task additional resources in the form of staff planning time and training, information about innovative organizational strategies, and a systematic method of planning. All of these are routinely described as being in short supply in schools, and each undoubtedly contributed to the successful implementation of the charter. Yet these factors may fail to capture the researchers' most important contribution, their sustained presence in the school. Researcher participation in organizational planning and staff development year after year eroded the staff's beliefs that the university researchers' investment in the school was superficial and that their reform ideas were not grounded in school realities. Further, the researchers' presence helped to maintain a focus on charter implementation which tended to get lost amidst high staff turnover, yearly changes in district policies, and uneven commitment to reform. Our experience working with school staff solidifies our belief that a part of the school system's failure to reform can be explained by an exaggerated separation of school and university interests.

Several issues of implementation remain unresolved, most notably, the inclusion of special education and Chapter 1 students in the charter's regular education program. Inclusion effected major changes in the functioning of program specialists and created a lasting preoccupation among program heads with insuring that the evolving charter program complied with categorical program requirements. While it was too early to evaluate these students' progress given that charter staff continued to develop an integrated program, it is significant that staff maintained their support of inclusion. Clearly, however, justification for full inclusion of special and remedial students must rest on close scrutiny of these students' performance in programs such as the charter's.

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Development of Transition Programs for Adolescents with Serious Emotional Disturbances

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ADOLESCENTS WITH SERIOUS EMOTIONAL DISTURBANCES (SED) ARGUABLY ARE THE MOST under-served and most needy segment of all disability groups under the umbrella of special education. Current national studies (Cook, Solomon, & Mock, 1988; Neel, Meadow, Levine, & Edgar, 1987, 1988; Wagner & Shaver, 1989) paint a bleak picture of the vocational and community adjustment of the SED population after leaving high school. School dropout rates among these persons range from 50% to 60%; unemployment runs between 30% to 40%; if employed, the work that is secured is low paying and menial in nature; few enter any type of postsecondary educational training; and many are arrested at least once in the two years following their exit from high school. Recent data from the SRI National Longitudinal Transition Study (Wagner, 1992) documented that the SED group experienced the highest unemployment (52%), poorest work history, and highest number of social adjustment problems four years post-high school of any of the 12 special education disability categories recognized by the federal government. Compounding this situation is the almost complete lack of support services for these persons after leaving school and entering the community. Kortering and Edgar (1988) found that few SED adolescents and young adults (only 5% of their sample) had any contact with the vocational rehabilitation agency, a figure that is corroborated in at least one national study (Wagner & Shaver, 1989).

A study of school-leavers in this state (Halpern & Benz, 1984) indicated that persons labeled as SED exhibited higher rates of school drop-out (about 45%), unemployment (about 50%), under-employment (worked less than 30 hours a week for pay around minimum wage), and social problems than persons in other disability categories and in relation to a control group of nonhandicapped peers. The SED group also experienced exceptionally high rates of

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problems—as compared to other disability groups and the control sample—related to drug use, criminal experiences, social unhappiness, and victimization (Doren, Bullis, & Benz, 1994a, 1994b).

In recent years there has been general recognition that secondary transition programs for students with disabilities are poor and need great improvement to affect positive community adjustment (Edgar, 1987, 1988). As a result, there have been millions of dollars and hundreds of projects implemented at the federal, state, and local levels to improve transition services for all students with disabilities (Clark & Knowlton, 1987; Halpern, 1990; Rusch et al., 1988). However, this thrust usually has not included adolescents with SED (Bullis & Gaylord-Ross, 1991; Knitzer et al., 1990; Rusch et al., 1988). Perhaps because of their high dropout rate, poor attendance, or negative social behaviors, these students simply are not being involved in the new wave of transition programming at the same rate or manner as peers with other disabilities (Bullis & Gaylord-Ross, 1991; Wagner & Shaver, 1989). In short, a population that is woefully in need of focused, pragmatic transition services is not being provided such interventions.

In a related vein, secondary staff are in need of re-training in order to provide transition and vocational interventions (Halpern & Benz, 1984), particularly as related to the unique characteristics of and demands posed by adolescents with SED (Bullis & Gaylord-Ross, 1991). Given how few vocational and transition programs there are for this population, it is not too far of a conceptual leap to conclude that few staff have the requisite skills necessary to deliver effective transition services to this population (Bullis & Gaylord-Ross, 1991; Fredericks & Nishioka-Evans, 1987).

In an attempt to address these issues, Teaching Research began a federally funded grant project to work with three school sites to identify both program and staff needs and then to develop a "tailored" intervention to change and improve program services for adolescents with SED (Bullis, 1992). Because changing an educational program is difficult, slow and complicated, we first explored the various parts of each school system and the effects that a change in one aspect of the system would have on the system as a whole, (Schalock, Fredericks, Dalke, & Alberto, 1994). We then worked with program staff at each of the sites to develop skills and programs that reflected a functional secondary curriculum, a system of vocational placements in community settings, and a network of related service agencies to foster and support the student's transition from school to the community. We also worked with each school system as a whole by providing regular educators and administrators training and support on mainstreaming techniques for students with SED. Because of the unique characteristics, structure and needs of each school system and their SED program, this process of staff training and program development was varied and ongoing throughout the three year period. This paper presents a summary of these activities and a preliminary summary of the project's results in both narrative and qualitative forms. To provide a context for this discussion, we first discuss necessary characteristics of effective transition programs for adolescents with SED.

Characteristics of Quality Programs

Adolescents with SED foster a myriad of intervention and service delivery issues. Accordingly, interventions offered in the secondary grades must be as powerful and pragmatic as possible, as they are likely to be the last concentrated social services many of these students will receive. Further, some contend that adolescence may be the most fertile time to intervene with some segment of this population, as they are approaching adult age and may be receptive to participation in structured programs (Bullis, 1992; Hobbs & Robinson, 1982). Unfortunately, little research attention has been paid to adolescents with SED (Bullis et al., 1992; Bullis & Gaylord-Ross, 1991; Jorissen, 1992; Scruggs & Mastropieri, 1985) and few examples of clearly effective interventions and programs have been published (e.g., Feldman, Caplinger, & Wodarski, 1983). This situation is most probably due to the durable nature of SED and the very real difficulties of offering interventions in community settings to adolescents with SED. The following characteristics represent the major components of transition programs for this population (For a complete discussion of these points see Walker & Bullis, in press). These guideposts provided the context for the program change efforts in this project.

First, as a rule, transition programs for adolescents should be based in the schools. For many students, the school is the most stable unit in their lives, and it is a constant for many until the age of 16, and beyond. But, the educational and transition data on these students is far from positive; so it is possible to conclude that "traditional" educational offerings are not effective, and must be re-designed to have maximum impact.

Second, it is unrealistic to believe that only the resources of the school need to be, or should be, utilized in an effective treatment program. The varied and numerous needs of adolescents exhibiting antisocial behaviors will require that multiple, specialized agencies from outside the schools become involved in order for the program to address the needs of these students adequately. Examples of just a few such programs include mental health, substance abuse treatment programs, welfare, criminal justice, and so on. Of course, the introduction of multiple programs within the schools and the coordination of multiple program services creates a different set of problems. Accordingly, a key component of service provision is case management. Case mangers become service brokers, advocates, friends, and provide vocational placement and support.

Third, as service programs deal with issues and problems that are outside the usual realm of special education, such as addressing antisocial behaviors, it becomes imperative that they include training to prepare staff to succeed within these new contexts. Obviously, training needs will vary across programs and staff, but it is clear that some type of ongoing development activities must be included in effective programs.

Fourth, the inter-relationship of behaviors associated with SED (i.e., delinquency/criminality, substance abuse, pregnancy and "at-risk" sex, and school failure/dropout) cannot be ignored. Interventions cannot afford to be focused toward only one of these behaviors. While not all adolescents with SED will exhibit all four of these behavioral clusters, many will exhibit more than one deviant behavior. Thus, a program focused on only one of these clusters may not address other important, associated problems.

Fifth, by the time the adolescent reaches the teenage years, he or she is likely to be far behind their peer group in terms of academic achievement (Epstein, Cullinan, & Sabornie, 1992). This lag is doubly concerning as it coincides with the growing pains associated with adolescence (e.g., the desire to be included in a peer group) and the openness of the high school setting. On the other hand, many of these adolescents have the potential to learn, and some portion of their academic deficiencies probably can be attributed to lack of effort. Consequently, it is imperative that heavy emphasis be placed on academic instruction to provide fundamental reading, computation, and expressive skills.

Sixth, persons with SED generally exhibit deficient social behaviors relative to their peers without antisocial behaviors. Accordingly, social skills training and social supports should be a central feature of educational programs at this point in the educational system. However, these specific interventions cannot in and of themselves be completely effective and should be structured to be as powerful as possible for maximum effect by focusing on skills needed in the vocational and community settings in which the individual is placed (Walker & Bullis, in press) and utilizing multiple training procedures, focusing on generalization to the *in situ* settings (Clement-Heist, Siegel, & Gaylord-Ross, 1992).

Finally, most of these students do not go on to postsecondary education; rather the majority leave school and enter society in the vague hope of finding a job and of living independently. As the secondary years may be the last chance for these persons to receive access to any type of intervention or education, they must be as powerful as possible. In line with this reality, we strongly believe that academic offerings at the secondary grades should emphasize *functional skills* that relate to the demands the individual is likely to encounter upon leaving the academic setting (e.g., balancing a checkbook, completing a job application) (Fredericks & Nishioka-Evans, 1987), coupled with a community-based vocational training program. Vocational preparation has been shown to be a deterrent to dropping out of school before completion (Thornton & Zigmond, 1988; Weber, 1987). Securing vocational placements and providing support in these settings is extremely important and should be provided to all students with SED (Bullis, et al., 1994).

Method

At the start of each project year, we worked with each of the three participating sites to identify their staff and program development needs through an empirical decision-making process. Based on these decisions, project staff provided training to the school staff, direct experience in model vocational and transition projects we operate (e.g., Bullis, Fredericks, Lehman, Paris, Corbitt, & Johnson, 1994). Following this, ongoing staff support and consultation were provided to assure that the skills and procedures were implemented fully and appropriately within the program's particular setting. A plan for program change was developed at each site, and a small amount of project monies were allocated in line with these plans. Thus, each site developed a "tailored" secondary program for adolescents with SED that was supported by project staff and resources. This general process was repeated in each project year. The effect of these interventions on the program, staff, and students at each site was examined through the gathering of extensive data.

Sample

The following is a description of each site at the onset of their first year of grant involvement. None of the three sites had previously offered any vocational curriculum or work experience to students with SED. Administrators at each site agreed to hire or reassign vocational assistants and the necessary classroom staff in order to implement a vocational model.

Site 1

Site 1 was a self contained program for secondary students with SED. It was located in a former office building in a rural town near the county Educational Service District headquarters that served as the administrative body for the program. Students were referred for services from the seven high schools located within the county. Bus transportation was provided from these rural county high schools to the program site.

Student enrollment ranged in number from 8 to 12 each year. The majority of the students attended the program for one half of the school day and their home high school for the remainder of the day. A small number of students attended the program for a full day. All of the students enrolled in the program were diagnosed with a primary handicapping condition of SED as a prerequisite to their placement in the ESD program. The majority of the students also demonstrated significant impairment in their academic skills consistent with those of learning disabled or low intelligence level students.

Program staff originally consisted of one teacher, two teaching assistants, and one newly assigned part-time vocational assistant. Each half-day loosely consisted of three 60 minute periods with a 15 minute break between periods. Vocational placements were usually one hour in length occurring from two to five days per week.

The primary educational thrust of the program was that of a tutorial model in which students could receive assistance on their high school coursework. Additionally, the classroom teacher selected materials for individual student instruction and/or obtained coursework from the students' high schools. The teacher and classroom assistants shared in the one-to-one tutoring of students and in the transportation to and from vocational placements.

Site 2

Site 2 was the Court School division of a county Family Court Education Program. It was administered by, and located on the grounds of, the County Juvenile Department. The Court School provided educational and vocational programs for adjudicated delinquent youth between the ages of 12 and 18 years. The program operated year-round, and students were required to provide their own transportation and to attend each day the school was in session.

Student enrollment averaged 35, with the majority of the students in the program aged 14 to 16. As is typical of this population, boys outnumbered girls at a four to one ratio. Although all of the students exhibited delinquent behavior and social and/or academic difficulties as a prerequisite of placement, only approximately 25% of the students were on Individual Education Plans (IEPs). Unfortunately, a large percentage of adjudicated youths are considered conduct disordered and are therefore excluded from special education services; a practice that is controversial but prevalent in the public schools (Bullis & Walker, in press; Forness & Knitzer, 1992; Peacock Hill Working Group, 1991).

The Court School administrator closed the program for approximately six months at the onset of grant involvement in order to hire quality staff and to allow them time to initiate a vocational program with our involvement. The new staff of the Court School consisted of one certified special education teacher, one secondary teacher, three instructional assistants, and a vocational assistant. Staff and administration made a strong commitment to the teaching of functional, social, and vocational courses, and to the students' need to experience community work placements. All of the teachers and classroom assistants shared in the planning and teaching of these functional courses.

The school schedule resembled a typical eight period high school day. Community work placements were scheduled for three days a week, (usually Monday, Wednesday, and Friday), for a maximum of four hours each day. Student schedules were arranged to ensure that they attended a minimum of a high school completion class and a social skills class on the days that they worked in the community.

Site 3

Site 3 was added to the project during the second year of the grant. This site was a high school special education vocational program located in a small rural school and funded by a county Educational Service District (ESD). The program served students grades 9 to 12 from three small school districts. The program initially was designed and implemented approximately seven years ago, but had been discontinued for the past three years due to a lack of qualified personnel and budgetary constraints. No vocational programming was offered for students with SED during this interim. The ESD sought our support in re-establishing the program in order to resume providing vocational training and community placements to handicapped students.

A unique feature of this high school was the opportunity for students to earn an alternative vocational diploma. The coursework designed for this diploma focused on functional living, work, and social skills. Students generally chose this vocational "path" by their junior year in order to complete the necessary coursework and fulfill the requirements of extensive career exploration and work experience. This alternative diploma format offered handicapped and/or at-risk students the opportunity to earn a diploma rather than a certificate of attendance, at the same time providing them with the skills necessary to work and live successfully in the community.

Enrollment averaged 54 students per year. Students attending the vocational program were primarily diagnosed as learning disabled and/or SED. A small percentage of the students enrolled were not diagnosed with a handicapping condition, but were considered "at risk" and were therefore enrolled in the vocational program as a means of encouraging school completion. Program eligibility for all students was determined through a review by the ESD's screening team upon referral from the student's high school.

The staff of the vocational program consisted of one special education teacher and one instructional assistant. Also serving this program was a special education vocational assistant and an additional instructional assistant, both of whom worked with other special education programs within the school as well. Students were engaged in vocational courses or activities from one to three periods per day, with the remainder of time spent in the school's special education Resource Center, and/or mainstreamed into regular high school courses.

Interventions

Several avenues were utilized to assist each site in the development and implementation of a unique vocational program.

Needs Assessment

Initial staff training and program modification needs were determined through the use of an instrument adapted from Andrew Halpern's Transition Program Effectiveness Index, (TPEI) (1988). This instrument consists of 130 items distributed across six content areas determined to be critical to a quality transition program: Curriculum & Instruction, Coordination & Mainstreaming, Transition, Documentation, and Administrative Support. Each item is given a value, ranging from 0=not important to 3=critical, and is rated in the degree of implementation ranging from 0=achieved to 3=not achieved.

All school staff and administrators, as well as grant staff, completed these in-depth program ratings at the onset of grant involvement and again at the beginning of each school year. An analysis of these ratings identified specific areas of transition programming that were rated as highly desirable, yet inadequately implemented. All sites identified community vocational placements, accessing community service agencies, the development of functional curriculum, and mainstreaming support as areas in need of development. These areas formed the focus for the interventions conducted with each program.

Additional inservice needs were determined through the use of a training needs survey. All classroom and vocational staff as well as administration completed this survey each spring to identify training needs and inservice format for the following year.

Inservice Training

Inservice training was held for all participating sites on a yearly basis. Training was initiated through a multi-site, three day inservice held in January, 1993. The first day of the inservice provided participants with background information on SED program designs, and presentations from three area vocational transition programs. The second day consisted of extensive training in functional curriculum, behavior interventions, and social skills training, and the organization of a transition program for students with SED. The final day of training focused on community transitioning. Local experts on transition planning shared their systems, and representatives from Vocational Rehabilitation and State Mental Health discussed ways in which school programs could access local services.

The second inservice was held in August, 1993, shortly before the beginning of the second grant year. As the result of an inservice needs survey completed by school staff and administration, we elected to address the following areas: behavior management, job support groups, pre-vocational classes, and functional program design. Day 1 utilized Teaching Research specialists to discuss behavior management at the work site, the function and format of in-class job support groups, and the components of pre-vocational training. Day 2 consisted of in-depth instruction and guided practice in the design and implementation of functional program components.

The third inservice was held in February, 1994. The results of an informal survey and discussion with site administrators and service delivery staff determined the six areas of training needs that we provided during the inservice. On the first day, all staff received information on certificates of initial mastery from the State Department of Education, writing Individual Education Plans (IEPs) for functional skills from a University of Oregon specialist, and assisting students in obtaining a certificate of General Educational Development (GED) as an alternative to returning to high school. On the second day, vocational and instructional assistants were inserviced on behavior management techniques while teachers and administrators received information on the implementation of a job support group from members of a Youth Transition Program Job Club and University of Oregon transition specialists. All staff were provided with information on the implementation of a classroom-based business venture.

Individual Site Training and Support

The degree of support and services offered varied at each site, and within each site, from year to year. Our initial involvement with Site 1 required a very intensive approach that included Teaching Research staff teaching pre-vocational and social skills classes at the site. We also hired a program specialist to conduct a technical assistance visit and evaluation of this site. As a result, we hired a second specialist to provide training on behavior management and intervention techniques to the staff. We also facilitated the classroom teacher visiting a model demonstration vocational program for SED students to observe materials and techniques.

Site 2 utilized the expertise of the Teaching Research data services department in the development of an enhanced, computerized record keeping system. The project director assisted in the identification of pertinent student data and coordinated the implementation of a student data base into the juvenile department's records system.

Site 3 was provided individual support in the form of a vocational special education consultant who worked with the teacher throughout the year to assist in the designing and implementation of the vocational program.

All three sites were provided with opportunities and funding for classroom and vocational staff to visit vocational programs run by

Teaching Research and others throughout the area, and to attend conferences and inservices throughout the state. For example, the vocational assistants from all three sites visited a vocational program for adolescents with SED to observe materials and techniques and to visit employment sites. In addition, we sponsored classroom and vocational staff attending the annual Oregon Association of Vocational Special Needs Personnel conference each spring.

Ongoing Consultation

The two project vocational specialists maintained weekly contact with the vocational staff at all three sites throughout the school year. The project coordinator maintained biweekly contact with the administrators and/or classroom staff, and the project director maintained monthly contact with the administrators at each site. During these contacts, a variety of training, inservices, materials and advice were provided in accordance with the planning meetings conducted each fall at each site. In addition, all sites expressed an interest in establishing school-based businesses, so additional support was provided toward this goal.

Funds

All sites were allocated a portion of the project funds each year, ranging from $1,500 to $3,500 per year. We assisted administration and classroom staff in the designation of these funds each fall toward the curriculum, software, supplies, or support services that were needed. Additional monies were provided twice yearly for the completion of data packets on each student tracked as part of the project.

Data Collection

We hypothesized that by changing the nature of the programs that we would see changes on three levels: program, staff, and students. Therefore data were gathered on each of these components.

Program

Changes observed in the composition and structure of each program throughout each school year were summarized in narrative form in year-end reports. The most significant change noted across all three sites was the implementation and development of community vocational placements. Additionally, data was gathered on changes in program format and population throughout the grant period on a Monthly Program Profile Form. This form detailed the numbers of students enrolled and/or working, vocational courses offered, and contacts with community service organizations. An additional measure of change that will be amassed for each program will be achieved by the comparison of staff program ratings gathered each fall through the use of a revised version of the Transition Program Effectiveness Index (TPEI) (Halpern, 1989).

Staff

The effects of the grant on school staff were measured in several ways. First, a project satisfaction survey was completed at the end of each school year to measure staff perceptions of grant involvement. A second measure was the administration of two stress surveys to all classroom staff in the fall of the last two grant years. These measures were then completed again by all staff in the spring of each year. The third measure of grant impact on staff was the completion of workshop evaluations.

Students

To demonstrate the effects of the project on selected students (up to 20 per year at each site), we gathered extensive demographic and socioeconomic data at the beginning of each school year on measures developed by Teaching Research. We also gathered a detailed description of their social and behavioral aptitude through the use of the Devereux Behavior Rating Scale (Naglieri, LeBuffe, & Pfeiffer, 1993), the Scale of Job-Related Social Skills Performance (Bullis, Nishioka-Evans, Fredericks, & Davis, 1992), and the Scale of Community-Based Social Skill Performance (Bullis, Bull, Johnson, & Johnson, 1994), administered at the beginning and end of each year. In addition, we monitored the students' vocational, educational, and social experiences each month throughout the school program, and then interviewed all parents and students at the end of the year regarding their impressions of the school services. Students were also interviewed after they exited the school program—whether through graduation, dropping out, or moving—at six month intervals to ascertain their perceived gains in transition success through participation in the program.

Results

The following is a discussion and summary of results from years 1 and 2. Table 1 provides a description of the student sample obtained through the gathering of extensive demographic and socioeconomic data. This data is gathered on a total of up to 20 students at each site each fall.

Table 2 provides a summary of the vocational training and work experiences of the students at each site. Extensive data were gathered on the monthly school, work, and social experiences of the actively enrolled students. The primary change resulting from grant involvement was the addition and development of community work experiences at each site. An additional achievement at Sites 2 and 3 was the implementation of extensive classroom instruction in pre-vocational and social skills.

The most significant change observed in Site 1 was the implementation and development of community work experience placements. In year 1, the ESD's vocational assistant was responsible for developing community placements for all students and for providing the initial student training at the job site. The majority of student transportation to and from work sites, after initial training, was

Table 1. Table of Particpants (Years One and Two)

	Site 1 (N=17)	**Site 2 (N=30)**	**Site 3 (N=20)**
Male	15 (88%)	27 (90%)	12 (60%)
Age (mean)	16	16	16
IEP	16 (94%)	8 (27%)	18 (80%)
Ethnicity	1 (6%)	15 (50%)	1 (5%)
Drug/Alcohol Treatment (Ever received?)	0 (0%)	6 (20%)	2 (10%)
Adjudicated (Past or present)	5 (27%)	30 (100%)	7 (35%)
Single Parent Family (Majority of life)	6 (35%)	14 (47%)	7 (35%)
Runaway (Any living situation)	7 (42%)	26 (53%)	3 (15%)
Paid Work in Past (Before program)	9 (53%)	22 (73%)	19 (95%)

Table 2. Average Monthly Experiences in Year Two

	Site 1 (N=9)	Site 2 (N=20)	Site 3 (N=20)
Number in Community Jobs (mean)	7.0	5.5	11.75
Number in Paid Community Jobs (mean)	2.6	3.0	4.2
Hours per Week in Community	<5hrs	11-20hrs	<5hrs
Number in School-Based Jobs (mean)	3.0	17.25	8.0
Hours per Week in School Jobs	<3hrs	<3hrs	3-5hrs
Hours per Week Instruction in Social/Vocational Skills	2.0	16	13

provided by the classroom assistants. Unfortunately, these placements were primarily inappropriate, low-level positions such as custodial or recycling tasks, and were largely unpaid.

In year 2 a number of changes occurred in the quality and quantity of vocational placements. Additionally, most students assisted in some aspect of the operation of a new classroom-based cookie business. These vocational changes can be attributed to a change in staffing roles and responsibilities in conjunction with the initiation of a state funded Youth Transition Program (YTP). All job development, supervision, and transportation responsibilities were shifted to the two full-time vocational assistants, funded in part by the YTP.

A second area of program improvement, also initiated in year 2, was the addition of the ESD's Assistant Special Education Director. He was extremely involved in both the daily functioning and long term planning of the SED program. He worked closely with the Teaching Research project director and the classroom staff in an attempt to initiate the implementation of a vocational program.

Unfortunately, changes made in the classroom component of the program in the first two years were minimal. In both years teachers were hired late, and both had little experience with adolescents with SED and/or transition programs. Thus, efforts to effect changes in these years were difficult on all sides.

Site 2

At Site 2, the administrator set out to establish the very type of functional, vocational transition program that this grant project advocates through careful staff selection and extensive staff training and preparation. To accomplish this, the site closed down from June to January of the first grant year in order to redesign the program's policies, procedures, and curriculum focus. This new instructional model included a screening process and year-long commitment requirement, as well as a functional academic focus, pre-vocational and social skills training, and a system of community-based vocational placements in competitive work sites.

The most significant changes in programming and scheduling initiated by grant staff involved the introduction and development of a community work experience component. Staff training was provided in job development and placement techniques. In year 1, community work placements were arranged for the majority of the students. Most of these placements were unpaid work experience; however, the local Job Training Partnership Act Program was accessed and did pay most of the students during the summer months.

In year 2 the variety and quality of placements were upgraded to include an assortment of job clusters and worker skill levels. A job shadowing component, in which students observed and experienced various job sites was initiated. In addition, the community service required of most students was upgraded from a litter detail to valuable work experiences such as volunteer work at a local elementary school. A student-run classroom business involving selling helium balloons was also revived and expanded. These changes in vocational experiences were due to the hiring of a new vocational assistant with extensive experience in vocational placements for at-risk adolescents.

The educational structure and curriculum required few modifications due to the quality of classroom staff and program components, however, grant staff provided training and assistance to classroom and vocational staff as needed. The majority of classroom staff had several years experience with adolescents with SED, but none of the staff had any previous experience with vocational programs. Over the course of the first two years of the grant, all staff members showed an increase in confidence in the selection and instruction of functional and vocational curriculum and activities. Staff members divided up teaching roles and responsibilities and administrative tasks according to their personal strengths and interests. This enabled the program to provide a full spectrum of functional academics and vocational training for this population.

Site 3

Site 3 was added in year 2. The primary development throughout the year included the development of a series of community vocational experiences. Community work placements were arranged for the majority of sophomores, juniors, and seniors. Students generally began their community experiences as part of a landscaping enclave established for sophomores enrolled in a two period block of vocational courses. The juniors and seniors were provided with a variety of job shadowing experiences, and an average of nine students per month were placed in either paid or nonpaid work experiences.

Work experiences were hampered by the rural location of the high school and the lack of availability of a school vehicle. The vehicle was available only one afternoon per week to transport juniors and seniors to job shadowing and/or work experience placements. Unfortunately, this arrangement required students to miss one afternoon of their mainstreamed courses, thus requiring students who are typically behind in coursework the additional burden of making up all missed assignments. The landscaping enclave used the school vehicle to transport students to various community worksites three days per week.

The courses taught in the vocational program were driven by the requirements of the school's vocational diploma. The hierarchy of coursework taught advanced from career exploration through paid community placements. The freshman courses stressed career exploration and career interests. The sophomore courses were taught in a two period block in order to accommodate community enclave work experience in addition to coursework in career planning and worker skills. Juniors and seniors focused on functional life skills, community law, and social responsibility. Social skills were an integral part of all courses at each level.

The primary emphasis for the classroom in its first year was the development of courses in social skills and pre-vocational training. Teaching Research made a large assortment of materials available for review and trial by the school staff, and assisted in the purchase of selected curriculum materials. Courses offered toward the school's vocational diploma were implemented at the ninth and tenth grade level, with older students receiving as much living skills and basic vocational training and experience as time allowed before their school completion. Additional courses will be implemented as the younger group of students advance.

A special education teacher and instructional assistant were hired for the program, and a vocational assistant was hired to serve all special education students, including those in the vocational program. Although the classroom staff was new to vocational programs, they were extremely effective in establishing a vocational format. Critical components were initiated and refined throughout the year. Additional courses and vocational opportunities will be added as the program ages. Transportation will be an ongoing problem for the rural program, but attempts will be made to overcome this obstacle.

Discussion

In year 3 we will continue to provide each school program with the training and support necessary for the further development of their transition programs. At site 1, the ESD has hired a teacher with SED transition program experience and a classroom assistant with SED experience. They have purchased a number of functional curriculum materials and software in order to provide students with extensive functional skills training. Classroom support now is offered for community placements, and the classroom-based cookie business has been expanded. In addition, Teaching Research is facilitating the implementation of a consultative model for the mainstreaming of students in their home high schools. We will provide teacher coverage one half day per week, beginning in January, so that the classroom teacher may travel to the rural high schools enrolling SED students in the program. There, he will meet with special educators, regular educators and administration having contact with these students in an attempt to facilitate their successful mainstreaming. We will provide training in this model for the teacher, and a series of inservices on SED inclusion to the high school teachers and administrators.

At site 2, we will continue to provide technical assistance in the establishment of a computerized data system. We also will facilitate the training of classroom staff in the implementation of a portfolio evaluation system and a project-based curriculum in order to assist the school in their compliance with the 21st Century act. In addition, we will provide training in SED transition programs to the new classroom teacher being hired this year.

Site 3 has requested assistance in providing mainstreaming support to vocational students in year 3 of the grant. Accordingly, Teaching Research staff strongly encouraged administration to reduce the teaching responsibilities of the vocational teacher in order to facilitate the expansion of a consultative model. Regular educators and administrators will also be provided inservice training on effective mainstreaming of the students. In addition, we will continue to assist in the development of the community work experience component. Transportation alternatives will be examined, and a program brochure will be printed to assist in community placement recruitment.

By the end of this next year, significant changes will have been made in all three sites. These changes will have significant implications for the programs, staff, and the students. We are optimistic that the sites will continue to offer vocational and transition services, and that their students will benefit from these efforts. Adolescents with SED can be affected positively by focused, relevant programming as described in this paper. Unfortunately, interventions such as these are not widespread and should be promoted in all secondary schools to improve the transition experiences of adolescents with SED.

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An Inside Look at School Reform: What We Have Learned About Assessing Student Learning in a Nongraded Primary School

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THE COLLEGE OF EDUCATION AT THE UNIVERSITY OF OREGON IS IN THE SECOND YEAR OF A 5-year collaborative project with three elementary schools in the Eugene area. The project is being funded by the U.S. Department of Special Education, Office of Special Education Programs. The Office of Special Education is interested in studying how school reform efforts, which are occurring at the national level, affect students with disabilities. The specific purpose of the grant is to influence and explain the relations among interdependent school systems and resource use strategies (e.g., team building, consultation, student assessment) within the context of school reform efforts including the implementation of nongraded, multi-age programs and developmentally appropriate practices, site-based management, and alternative assessment practices.

The purpose of this paper is to provide background information on school reform and describe our efforts thus far in working with one elementary school to implement a student assessment system that (a) provides teachers with information they consider important, (b) documents how well students in special education are learning over time and in relation to normal achieving peers, and (c) facilitates communication between general and special education teachers regarding how to improve instructional programs for students with disabilities.

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School Restructuring

School reform has received national attention during the last decade. National and state mandates targeting "Goals 2000" and "21st Century Schools" are discussed in schools, the professional literature, and in the media. General components that characterize the latest reform efforts include (a) the delegation of decision making from the district level to the school level (Ogawa, 1994), (b) higher levels of student achievement (U.S. Department of Education, p. 1), and (c) the use of alternative and authentic assessment practices to measure student outcomes (Baker, O'Neil, & Linn, 1993; Linn, Baker, & Dunbar, 1991). One increasingly popular approach for achieving better student outcomes, and an approach that has been widely adopted in the state of Oregon, is the use of nongraded primary classrooms that adhere to developmentally appropriate practice.

Nongraded Primary Education: Historical Perspective

From the 1950s through the early 1970s, a movement in North America known as the Nongraded Elementary School challenged the traditional age-graded classroom structure. The major purpose of nongraded schools was to provide an alternative to the practices of grade level retention and promotion. In the 1990s, several states have promoted the structure of nongraded classrooms as a way of achieving genuine educational reform (Willis, 1991). A fundamental addition to the latest nongraded movement is the notion of "developmentally appropriate practices." These practices emphasize activity-based instruction and discourage grouping students by ability or performance. Developmentally appropriate practices (DAP) advocate that children should be allowed to develop and acquire skills at their own pace. For example, a tenet of DAP is that some children are not ready to learn to read at age 6, and this should not be a source of concern for educators. Additionally, DAP practices support the integration of curriculum throughout the school day, in place of the more traditional subject-by-subject instruction. DAP tend to employ projects, learning stations, and cooperative learning which are consistent with the philosophy of nongraded primary programs.

Alternative Assessment Strategies

Educational reforms have begun to include new assessment approaches to align more closely with changes in school structure and classroom practices. Approaches to assessing student learning are changing dramatically in general education (GE) settings (Linn, Baker, & Dunbar, 1991), as well as in special education (SE) settings, although support for change in SE seems to be less widespread. In GE, the shift in assessment strategies has moved from evaluating student learning with published multiple-choice tests to evaluating learning using "more open-ended problems, essays, hands-on science problems, computer simulations of real world problems, and portfolios of students work" (Linn, Baker, & Dunbar, 1991, p. 15). The hallmark of alternative assessment strategies is their "authenticity," the fact that they reflect real applications of the challenging problems students engage in every day in the classroom and which mirror the real-world problems students can be expected to face beyond school.

Reforming special education assessment practices has been spurred not so much by a paradigm shift in instruction as by a desire to make assessment more relevant to instructional decision making and what students need to know, and do, to be successful in GE settings. In addition to establishing a closer link between instruction and assessment, other characteristics of alternative assessment practices in SE include utilizing more direct measures of performance, requiring production rather than selection responses, generating data useful in making educational decisions beyond screening and eligibility for service, and collecting data that can be used to make formative decisions about student progress as well as summative decisions about overall student outcomes.

Applying Assessment Procedures to General and Special Education Needs

The way reform affects GE and SE settings will have a strong influence on the educational experiences of students with disabilities. For example, the combination of site-based management, one of the foundations of GE reform (Ogawa, 1994), with inclusion, a philosophy of SE service being advocated and implemented in many places throughout the country (Fuchs & Fuchs, 1994), has the potential to seriously alter the very nature of SE service.

Technically adequate and functional assessment practices are needed to evaluate how students, including those with disabilities, are affected by the latest educational reform efforts. Understanding the limitations of assessment practices being promoted in GE and SE, and merging the strengths of assessment practices within each domain should facilitate evaluating the influence reform has on individual students. One approach to bridging the GE and SE assessment gaps is to increase the emphasis placed on classroom-based assessment procedures in which data have real meaning for teachers and classroom instruction.

Purpose

One focus of our project in studying how school reform efforts affect students with disabilities has been on developing classroom-based assessment procedures. We are in the second year of data collection. In Year 1, our intent was to develop assessment procedures with teachers in the early and late primary grades that (a) they would find useful, (b) adhered to high standards of psychometric quality, and (c) would provide important information on the performance of students with disabilities and students at risk for academic failure. Data collection activities in Year 2 are being designed to provide teachers with normative data regarding the performance of all students and multiple points during the year, and more frequent data on the progress of selected students they believe are at risk.

Student Assessment Year 1

Setting

The target elementary school involved is located in the Pacific Northwest and serves approximately 490 students in kindergarten through Grade 5. Twelve nongraded primary classrooms were the focus of data collection. Their class size averaged 29 students. The implementation of nongraded classrooms began in this school during the 1992-93 school year.

The nongraded model included six "early primary" classrooms combining kindergarten and first grade students. Kindergarten students arrived in the morning and were in school for two and one half hours, leaving just before lunch. First-grade students were in school for 6 1/2 hours. In the six "late primary" classrooms were second and third grade students.

The assessment in Year 1 was conducted in the spring. The purpose was to determine how well students had mastered important objectives and to establish a student performance data base that we could build on in the following years. All students in the early and late primary block participated in the data collection.

Procedures

We collaborated with the early and late primary teachers on the development of all assessment tasks. During an initial 4-hour meeting with all teachers, it was decided that reading, written expression, and mathematics would constitute the assessment tasks for both the early and late programs, and that to enhance decision making and continuity, there would be at least one common task between the programs.

After this initial meeting, the early and late groups met separately with us to develop assessment tasks. The tasks were developed during three separate 4-hour meetings. Components of good assessment tasks were discussed as well as the role of assessment with developmentally appropriate practices. Following is a description of the tasks and a brief presentation of the results from the first year's implementation. We have limited our discussion to reading and written expression because of space and because these were the areas teachers were most satisfied with the assessment information.

Early Primary Tasks

Reading. Three types of tasks were included in this assessment. All tasks required an oral response and were administered individually. First, students answered six questions from Marie Clay's Concepts About Print Test. This was administered to identify if students were developing initial ideas about the purposes of books and print.

On the second task set, students identified the letters and sounds of the alphabet. A page of random letters was presented to students, and they had to identify the names of capital and lower case letters, and the sounds of lower case letters. This task was administered because teachers work on this skill with some of their students during the year and because knowledge of letter names and sounds has been found to be strong predictor of reading (Adams, 1990). The third set of tasks were reading tasks. First, students were asked to read four simple 3 to 5 word sentences. Students who had some success with reading the simple sentences were asked to read a passage selected by the teachers.

We will report findings for the capital letter identification tasks and the letter-sound identification task. The number of correct responses out of 26 was the score used on each task in data analysis.

Language Arts. Four types of writing tasks were included in the early primary assessment. The written expression tasks were administered to small groups of students (2-4). First, students were asked to write the letters of the alphabet. Second, students were asked to write their first and last name. Third, students were given a series of sentences presented visually (copy from a paper, from a chart) or verbally (dictation) and asked to write them.

On the fourth type of task, students had to develop the writing content on their own. They wrote in response to a picture prompt, completed a sentence that was started for them, and wrote a story in response to a story starter.

We will report findings from one of the sentence copying tasks. This was scored quantitatively, by counting the number of correct letter sequences, and qualitatively, by judging the form and alignment of letters on a 1-5 scale (see Baker, Hall, & Tindal, in review).

Late Primary Tasks

Reading. The late primary reading tasks consisted of oral reading fluency (ORF) and a measure of oral retell. Students were administered two teacher-selected ORF reading probes. Classroom teachers determined that students would read two probes of high and average difficulty or average and low difficulty. Thus, all students read the probe of average difficulty. The students selected their favorite of the two passages and completed an oral retell of that story. We will report the results of the ORF assessment, which used the number of words students read correctly in one minute as the dependent measure (Tindal & Marston, 1994).

Language Arts. The teachers modeled the written expression tasks on two sources: (a) the procedures used during classroom writing instruction, and (b) the Oregon State Assessment writing task. Students engaged in one writing task administered to the whole class by the classroom teacher over three days. On day one, students brainstormed possible content for two writing themes: describing how to make the best sandwich in the world, and describing a really good friend. The teachers were free to use whatever brainstorming techniques they preferred. One-half hour was allotted for this activity. On the second day, students selected the prompt they would write about. All students were allowed 30 minutes to write independently. On the third day, teachers lead students through a series of questions which prompted editing of the material they had previously written. This activity took 20 minutes.

We will present the results of the writing students did on Day 2. We will discuss the number of words students wrote in 30 minutes, as well as a qualitative measure of the "cohesion" of the writing content. Cohesion refers to the sentence-by-sentence coordination and flow of writing.

Results of Year 1

The results of the Year 1 assessment will be presented separately for the early and late primary groups. For the early primary group, we will highlight student performance on two tasks in the reading assessment and one task in the writing assessment. With the late primary group, we will discuss one task and one scoring procedure for the reading assessment and one task and two scoring procedures for the writing assessment.

Early Primary Results in Reading

The results for the early primary assessment in reading are presented in Tables 1 and 2. Two measures are presented: identification of the 26 capital letter names, and knowledge of the most common sound for each of the 26 letters. Thus, on each task, a score of 26 correct was possible. Student group performance can be examined in three ways. First, classroom teachers identified approximately equal groups of high, average, and low achievers. Second, the sample is divided into kindergarten students and first-grade students. Third,

Table 1. Early Primary Reading Assessment Task: Identify Capital Letter Names of the Alphabet

	Total Sample			Kindergarten Students			First-Grade Students		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Total Number of Students	174	22.8	5.9	85	20.9	7.1	89	24.6	3.7
Teacher Judgment									
• High Achievers	58	25.5	1.5	32	25.1	1.9	26	25.9	0.3
• Average Achievers	69	23.4	4.8	33	21.2	6.1	36	25.5	0.8
• Low Achievers	47	18.6	8.2	20	13.9	8.6	27	22.1	5.9
School-Defined Status									
• General Education	–	–	–	85	20.9	7.1	55	25.5	2.1
• Chapter 1	–	–	–	–	–	–	31	23.6	5.3
• Special Education	–	–	–	–	–	–	3	18.3	5.5

Table 2. Early Primary Reading Assessment: Letter Sound Identification

	Total Sample			Kindergarten Students			First-Grade Students		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Total Number of Students	172	14.7	9.4	83	8.1	8.3	89	20.9	5.4
Teacher Judgment									
• High Achievers	58	17.3	8.4	32	12.5	8.5	26	23.2	2.5
• Average Achievers	69	14.7	9.1	33	7.6	7.6	36	21.3	4.1
• Low Achievers	45	11.4	10.2	18	1.3	2.1	27	18.1	7.5
School-Defined Status									
• General Education	–	–	–	83	8.1	8.3	55	21.9	0.7
• Chapter 1	–	–	–	–	–	–	31	19.9	6.8
• Special Education	–	–	–	–	–	–	3	13.0	7.5

some of the students in Grade 1 received services beyond general education: 31 students were in Chapter 1, and 3 students were in special education.

Overall, there were few performance differences between student groups on knowledge of capital letter names, except for identified low achievers in kindergarten who scored only about half as well as the high achievers. The overall difference between kindergarten and first-grade students seems to be due primarily to the performance of low kindergarten students.

A more interesting pattern occurs with letter sounds. A clear difference exits between kindergarten and first-grade students. For example, high-achieving kindergarten students scored lower than the lowest group of first-grade students. It may be that a focus on learning letter sounds occurs more with first grade than kindergarten students. Although teachers indicate that the teaching of any subject may occur at any time throughout the day, they suggested that more formal academic instruction tended to occur in the afternoon, after the kindergarten students were dismissed.

Early Primary Results in Written Expression

The written expression results are presented for the sentence copying task, which was scored using two criteria presented in Tables 3 and 4. The number of correct letter sequences, out of 14 possible was calculated. There were virtually no differences between the high, average, and low achievers in first grade, despite the fact that students only earned about 54% of the total possible score. The high-achieving kindergarten students performed about as well as the first-grade students; the average- and low-achieving kindergarten students were about .41 and 1.0 standard deviation units below the high-achieving kindergarten students, respectively.

The teacher rated the form and alignment of the sentence copying task on a 1 to 5 scale anchored by student samples. They did not rate the students in their own class, and were not aware of whether a student they were rating was in kindergarten or first grade. In general, the results show that first-grade students performed better than kindergarten students, and high, average, and low achievers scored consistent with that ranking.

The data in Tables 1 through 4 provide fairly strong descriptive evidence that (a) first grade students performed better than kindergarten students, despite being in the same class, and (b) teachers do a good job of informally assessing the skill levels of their students. Finally, the data are inconclusive about the role of early intervention. A high percentage of kindergarten students performed noticeably different than other kindergarten and first-grade students. Identifying these students as at-risk may be premature. Differences in first grade are not apparent on most of the tasks. It may be that different tasks are needed to identify the continued problems low kindergarten students have in Grade 1. Conversely, the small differences in first grade on the capital letter naming task and the sound identification task may be important and perhaps should be reviewed. A more formal statistical analysis of the data are needed to address this question.

Table 3. Early Primary Writing Assessment Task: Copy a Sentence from a Chart Correct Letter Sequences

	Total Sample			Kindergarten Students			First-Grade Students		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Total Number of Students	173	7.8	1.5	84	7.3	1.7	89	8.3	1.0
Teacher Judgment									
• High Achievers	46	8.1	1.0	26	8.0	1.1	20	8.3	0.9
• Average Achievers	69	7.8	1.4	33	7.3	1.6	36	8.3	0.9
• Low Achievers	58	7.4	1.8	25	6.3	1.9	33	8.2	1.2
School-Defined Status									
• General Education	–	–	–	84	7.3	1.7	55	8.3	1.0
• Chapter 1	–	–	–	–	–	–	31	8.2	1.1
• Special Education	–	–	–	–	–	–	3	8.3	1.2

Late Primary Results in Reading

The ORF data for the late primary students are presented in Table 5. These data are based on the passage of medium difficulty, which were administered to all late primary students.

The data can be examined on the same dimensions as the early primary data, except that two levels of achievement have been identified by the teacher instead of three. Also, more students in special education are in the late primary group than early primary group. The reading fluency measure indicated that the differences between second and third grade students were not as dramatic as the differences between student groups based on teacher judgment. At both second and third grade, there was an approximately 40 word-per-

Table 4. Early Primary Writing Assessment Task: Copy a Sentence from a Chart Qualitative Analysis

	Total Sample			Kindergarten Students			First-Grade Students		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Total Number of Students	173	2.6	1.1	84	2.2	0.9	89	3.1	1.1
Teacher Judgment									
• High Achievers	46	3.1	1.1	26	2.8	0.8	20	3.6	1.2
• Average Achievers	69	2.8	1.2	33	2.1	0.9	36	3.4	0.9
• Low Achievers	58	2.1	0.9	25	1.6	0.7	33	2.4	0.9
School-Defined Status									
• General Education	–	–	–	84	2.2	0.4	55	3.4	1.0
• Chapter 1	–	–	–	–	–	–	31	2.6	1.1
• Special Education	–	–	–	–	–	–	3	3.3	1.2

minute difference between high and low achievement groups. This difference produces an effect size of approximately 1.3 standard deviation units. Apparently, teachers had a strong sense of their students' basic reading skills, and these reading skills corresponded closely to their judgments about overall student reading proficiency.

Late Primary Results in Written Expression

The data for written expression are presented in Tables 6 and 7. Total number of words written is presented in Table 6, and the qualitative score of writing cohesion is in Table 7. Teachers did not rate their students' writing skills before the assessment, so there are no

Table 5. Late Primary Reading Assessment Task: Oral Reading Fluency Correct Words Per Minute

	Total Sample			Second-Grade Students			Third-Grade Students		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Total Number of Students	158	80.8	33.1	76	68.7	32.7	82	92.0	29.5
School-Defined Status									
• General Education	120	92.4	26.3	56	81.3	25.6	64	102.0	23.1
• Chapter 1	25	52.6	22.4	14	41.4	22.8	11	66.8	11.6
• Special Education	13	28.2	21.7	6	14.2	4.0	7	40.3	23.6
Teacher Defined Status									
Above Average	85	101.0	22.3	29	94.3	19.4	56	104.0	23.2
Below Average	73	57.5	27.9	47	52.9	29.0	26	65.8	24.1

Table 6. Late Primary Written Expression Assessment Task: Total Number of Words Written

	Total Sample			Second-Grade Students			Third-Grade Students		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Total Number of Students	152	77.1	46.9	72	60.7	37.7	80	91.8	49.5
School-Defined Status									
• General Education	115	81.2	48.5	53	63.8	40.9	62	96.0	49.8
• Chapter 1	25	63.2	32.4	14	53.0	22.0	11	76.1	39.5
• Special Education	12	66.8	52.6	5	49.2	36.9	7	79.4	60.9

high and low achievement groups as there were with the reading measure.

As with the reading measure, the third-grade students produced more than second-grade students, although the effect sizes were less than 1. The most interesting finding on the writing task concerned the relation between the amount of writing done by the special education students and how their writing was evaluated. In terms of writing productivity, the seven special education students in third grade produced more words than any of the student groups in second grade. However, the quality of their writing was rated the lowest of any group, except for special education students in second grade. Although this pattern is based on a small sample, it does highlight an interesting finding that may have instructional implications. For example, instruction with these special education students should focus more heavily, perhaps, on writing content than quantity.

Student Assessment Year 2

Setting

The school has made some changes in the nongraded primary structure for kindergarten through third-grade students in Year 2 of the project. The early primary group, previously kindergarten and first grade, has split into separate kindergarten and first grade classes. Two kindergarten classrooms now include morning and afternoon sessions. There are about 23 students in each of the four sessions. First grade consists of four full day classrooms, with approximately 22 students per class. Teachers from kindergarten and first grade plan together as an early primary team, and some activities combine both grades. The late primary team has not altered its organization or instructional approach. An additional change occurred when the school received recognition and funding under a Carnegie Foundation Grant as a Basic School.

Procedures

The teachers have decided to maintain a strong focus on assessment in Year 2. This fall, each team of teachers (the early primary team still consists of kindergarten and first-grade teachers) met with us to discuss the value of the assessment procedures developed and administered in the spring of Year 1. As each assessment task was discussed, teachers stated their satisfaction with the task and the practical application of the results. The primary theme that came out of this meeting was that the most valued tasks were those that had the most clear implications for instruction. In

Table 7. Late Primary Written expression Assessemnet Task:
Cohesion Rating on Sentence Flow and Logic

	Total Sample			Second-Grade Students			Third-Grade Students		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Total Number of Students	153	2.5	1.0	73	2.0	0.7	80	2.8	1.0
School-Defined Status									
• General Education	116	2.6	1.0	54	2.1	0.7	62	3.0	0.9
• Chapter 1	25	2.2	0.9	14	1.8	0.7	11	2.5	0.9
• Special Education	12	1.6	0.6	5	1.6	0.8	7	1.7	0.4

general, the teachers believed the measures represented what they taught. Overall, the results were highly valued.

The measures administered in the spring of Year 1 could be used only to make summative decisions. Teachers had a single data point for each task on each student that was collected very close to the end of the year. In planning for Year 2, the teachers discussed several issues for decision making such as: (a) individual student performance, (b) instructional/curriculum procedures, (c) group (classwide) performance, (d) school and level performance, and (e) communication with parents. Given the nature of the inquiries and the development of the measures, the teachers determined there was value in conducting multiple assessment activities multiple throughout the year. For the most part, each measure will be administered at least three times during the school year, at approximately equal intervals. A schedule for administration of each measure for the two levels appears in Table 8.

Additional Plans

As part of Year 2, teachers targeted students they believe are at-risk socially, behaviorally, or academically. Target students will receive monthly administration of selected measures. Parallel forms of each measure have been developed for assessment on a frequent basis. With parallel forms, the practice effect should not influence student performance. Rather, the data collected should illustrate individual progress or lack of progress over the school year. The measures will be scored in a manner that is sensitive to student change. Therefore, monthly monitoring of student performance will provide teachers with academic information regarding student progress. Teachers may determine a need for somehow changing or supplementing the instructional program.

Teachers may use the data from all measures to undergo program evaluation in any curriculum area. Additionally, in combination with the measures collected for the entire level, teachers will have a local normative comparison group on identical measures. Teachers can examine an individual student's performance in reference to the group, and any movement in relation to relative standing in that group.

Early Primary Team

First-grade and kindergarten teachers met collectively in planning meetings to review the previous year's assessment procedures, and to determine what measures they would

Table 8. Administration Schedule for Individual Measures

	MONITORING APPROACH	
	NORMATIVE PROGRESS: ALL STUDENTS	INDIVIDUAL PROGRESS: 56 AT-RISK STUDENTS
EARLY PRIMARY	Times per Year	Once per Month
READING		
Concepts About Print	√ √ √	
Letter Names	√ √ √	
Letter Sounds	√ √ √	√
Sentence Reading	√ √ √	√
Passage Reading	√ √ √	√
LANGUAGE ARTS		
Alphabet Writing	√ √ √ √	√*all*
Name Writing	√k √k √k √k	√
Sentence Copying	√ √	√
Sentence Writing	√ √	
Sentence Dictation	√ √	√
Written Express.(Picture)	√ √ √ √	
LATE PRIMARY		
READING		
Passage choice(?)	√ √ √	
Oral Reading Fluency	√ √ √	√
Oral Retell	√ √ √	√
LANGUAGE ARTS		
Writing Style	Sequenced	Random
Brainstorm	√ √ √ √	√
Writing	√ √ √ √	√
Editing	√ √ √ √	

use in Year 2 and for what purpose the data would be used. Additionally, one of the resource teachers and the speech and language therapist attended the early primary team meetings.

Reading. Teachers in both kindergarten and first grade chose to maintain the reading procedures developed in Year 1. All students, regardless of age, receive the same measure consisting of five main tasks (see Year 1 measure description). Assessment is stopped if or when a student "bottoms out." The consideration here is for students to demonstrate their abilities, and teachers do not want to push students into a situation of discomfort.

At this time, the teachers also decided to have the reading measure administered three times during the school year to all students. After analyzing the baseline data in the fall of Year 2, data from several tasks were informative in terms of student ability or inability to complete prereading and reading tasks. Not surprisingly, students identified as target students by teachers prior to the assessment generally scored in the lower quarter of the class.

Written Expression. The teachers opted to remove particular tasks from the previous version of the Written Expression measure. Several tasks had great similarity in skill requirements. For the most part, those tasks that did not show variance in student performance and were not useful for diagnostic purposes were dropped. Tasks that were maintained this year also differed between kindergarten and first grade. The types of tasks used in the 1994-1995 measures are listed in Table 8.

The teachers decided to have Written Expression measures administered four times during the school year to all students. The teachers were interested in monitoring student ability to write more independently and creatively, using the story starter. Additionally, they were interested in observing when student writing skills appeared to change qualitatively (e.g. spacing, alignment, letter formation).

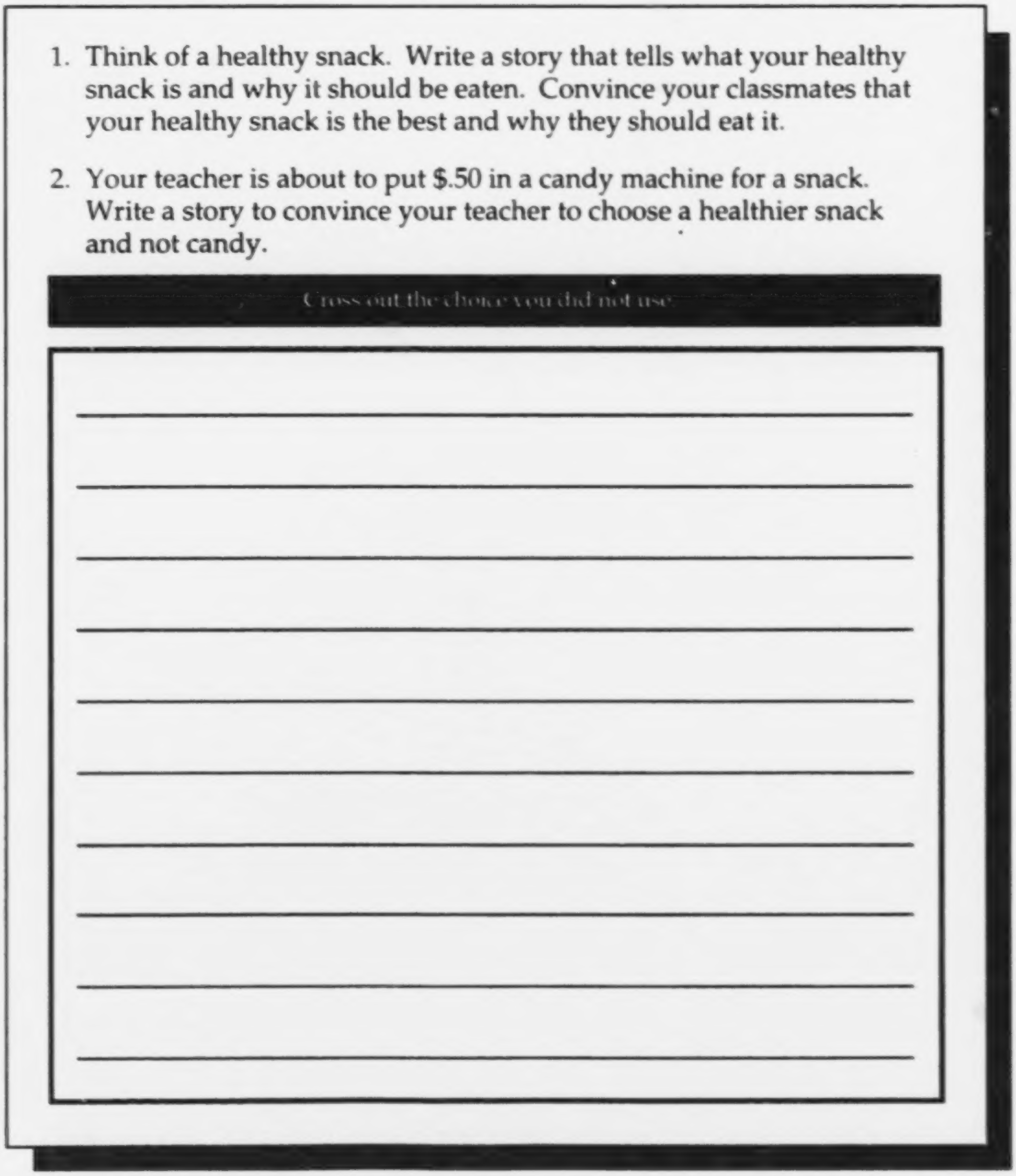
Late Primary Team

Teachers began the decision-making process for the 1994-95 school year by reviewing procedures and results from the previous spring assessment and projects completed in coordination with the grant. The team, consisting of six general teachers, one resource specialist, and the music specialist began with the writing measures. Teachers for the most part were very satisfied with the format and structure of the assessment materials developed and administered in the spring. Two meetings were scheduled to plan assessment in reading and written expression for this school year. Mathematics measures are still in the planning stages.

Reading. The three reading passages used in the spring were selected again for fall assessment. Teachers found the information from last spring to be very useful, and decided to maintain the oral reading and oral retell measures. They are keeping the same procedures as the previous spring, including audio taping each student. Additionally, the teachers decided to have multiple administration periods during the year to analyze student performance over time rather than having one data point. The first assessment was administered in early October, and will be readministered with parallel form passages in the winter and late spring. Different reading passages for winter and spring will be selected using the same selection criterion established in Year 1.

Written Expression. The teachers value writing as an integral part of their curriculum. Writing tasks are interspersed across the instructional day as a component of basic academics and content area instruction. This year, the teachers have opted to administer similar writing tasks four times during the year, approximately once per nine-week quarter. In early October, the teachers designed a written expression task for persuasive writing. Students were to use information they had been learning about positive health habits and apply that knowledge to convince their audience to eat healthy snacks (see Figure 1). Students were given two situations and selected their favorite about which to write.

In future written expression administrations, teachers plan on assessing other writing styles including narrative, descriptive, and expository. The administration and scoring procedures will be identical for each sample collected. The intent is to sample writing taught throughout the school year and to evaluate student performance in each style.



1. Think of a healthy snack. Write a story that tells what your healthy snack is and why it should be eaten. Convince your classmates that your healthy snack is the best and why they should eat it.
2. Your teacher is about to put $.50 in a candy machine for a snack. Write a story to convince your teacher to choose a healthier snack and not candy.

Cross out the choice you did not use.

Figure 1. Sample written expression task for persuasive writing.

Data Utilization

Through this project, teachers are transitioning into using more authentic, yet technically adequate means by which to obtain indices of student performance. The introduction of classroom-based measures in nongraded early and late primary school structure has altered assessment practices for teachers in several ways.

In the first project year, we learned current practices and student performance. From the initial assessment information, several tasks in reading and language arts identified students with differing skills. Many students clearly demonstrated knowledge on several tasks. Students' performance was measured at the same time, yet clear differences in performance were evident based on age level and ability. Teacher judgments of student performance were accurate when compared to assessment outcomes. This relationship provides us with consequential and social validation of the measures. Additionally, teachers were able to examine overall level of performance and evaluate program effectiveness in relation to the particular curriculum area. The assessment occurred after the majority of instruction for the school year was complete. Therefore, as mentioned previously, these measures were summative rather than formative.

In planning for the future, the school continues to work toward systematic restructuring, which includes the incorporation of DAP instruction in a nongraded primary setting that is inclusive for students with disabilities. Teachers will have direct information for decision making on three levels. First, continued formative evaluation of student performance will occur in basic academics. Second, data collection from different contexts will be added; (a) observations will occur regularly in each classroom, and (b) the teachers will work to enhance teacher, school, and parent communication concerning student performance through reports, graphic displays, and portfolio content.

Assessment

The measures and procedures developed in Year 1 have contributed to implementation in Year 2. As stated previously, all students will receive multiple administrations of each measure, equally distributed across the school year. Administration of parallel forms of these measures 3 to 4 times throughout the school year will serve in the formative evaluation process. Teachers will be able to evaluate any individual student's performance in comparison to his previous performance during the school year and across multiple years, rather than having a single summative report on student performance at the end of each school year.

Scoring procedures utilized are sensitive to small increments of change. By using parallel forms of each measure multiple times throughout the school year, change will be detected in student performance. Teachers can use this information to make informed program decisions. For example, this fall while examining results from an initial measure, teachers could evaluate and/or confirm scores for those students who were behind expected performance levels. Immediately, the teacher could plan instructional practices to supplement, or somehow change instruction for that student or group of students. Following the next assessment period, the teachers will be able to evaluate the effect of the instructional intervention for an individual or group of students by comparing individual scores from one assessment period to the next.

Additionally, four at-risk target students from each classroom will be measured monthly using parallel forms of selected tasks. By design, these students were selected by teachers for frequent monitoring. Data will be reported to teachers following each assessment. Teachers will be able to use this information from both individually-referenced and norm-referenced view points. They can compare the student's performance to previous performance, noting change as well as individual performance in relation to relative standing within the peer group. Teachers can make informed decisions about a student's progress over time and determine if an intervention is necessary to best meet the student's educational needs.

The teachers have a sense of expectations for student performance in a DAP setting. Teachers may use these data to judge actual performance against expectations as well as evaluate the program, curriculum, instructional practices, and individual students.

Observation and Consultation

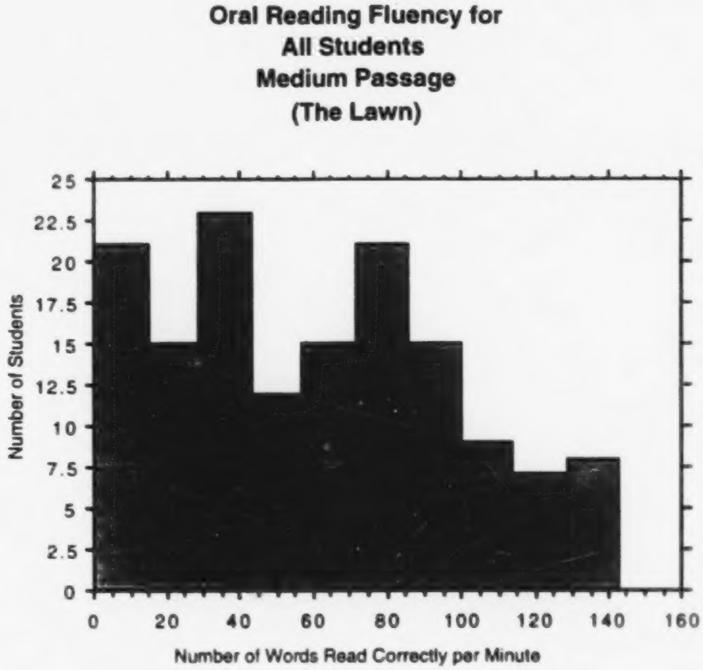
The context within which the data are used is important to the restructuring efforts. Information collected on student performance is one essential piece within the structure of the nongraded primary setting. Students form the teacher's classrooms and teachers form the building structure. Multiple observations have been randomly scheduled in all nongraded primary classrooms. Our intent of these visits is to observe target students and peers in different classroom contexts. In concert with the grant research, observers will attend to the adaptations teachers make in the classroom structures and instruction for students with disabilities and students having difficulty with classroom academic and behavioral expectations. Additionally, observers note the inclusiveness of the setting. In other words, what is the degree to which students with disabilities are involved in instruction and activities with their peers? We hope to observe if and when students participate in the classroom setting, and how the teachers adapt instruction to make inclusion successful for all students in a nongraded primary classroom with DAP philosophy.

A component in implementing the restructuring of nongraded primary classrooms in this school is the teamwork of teachers. As a part of team collaboration, teachers will consult with one another and / or specialists (e.g., chapter one and resource teachers) regarding students for whom they have academic or behavioral concerns. Recently, the early primary teachers established a schedule of observations in classrooms within their level. The intent of these visits is to observe teaching practices, and get procedural information from one another. But most importantly, the teachers wish to discuss areas of concern and collaborate about the instruction. For example, a teacher asked what the most effective way was to demonstrate and practice instruction from the big books. Rather than merely hearing a description of the procedure, this teacher will observe her colleagues teaching children from the same level. The teachers will then discuss and determine what procedure would be effective in another classroom.

Communication

An additional form of decision making involves communication. Teachers have scheduled assessments to receive student scores at nine-week grading periods. Graphic displays illustrate the performance of each primary level group. Scores displayed using both a histogram and box plot provide a visual representation of student performance distributions (see Figure 2). Teachers also will receive an individual report on each student, which numerically displays performance scores. Teachers may use the graphs and student scores to relate individual performance to the group.

This year teachers have used results from the normative data collection to share with parents the present level of student performance and relative standing in the group. Teachers and parents were pleased with this procedure. Several teachers expressed how easy it was to demonstrate to parents the academic expectations of the classroom, and how their child was doing in relation to classroom expectations, previous performance, and their peers.



Descriptive Statistics

	M-CWM
Mean	60.336
Std. Dev.	38.733
Std. Error	3.206
Count	146
Minimum	0
Maximum	143.000
# Missing	5

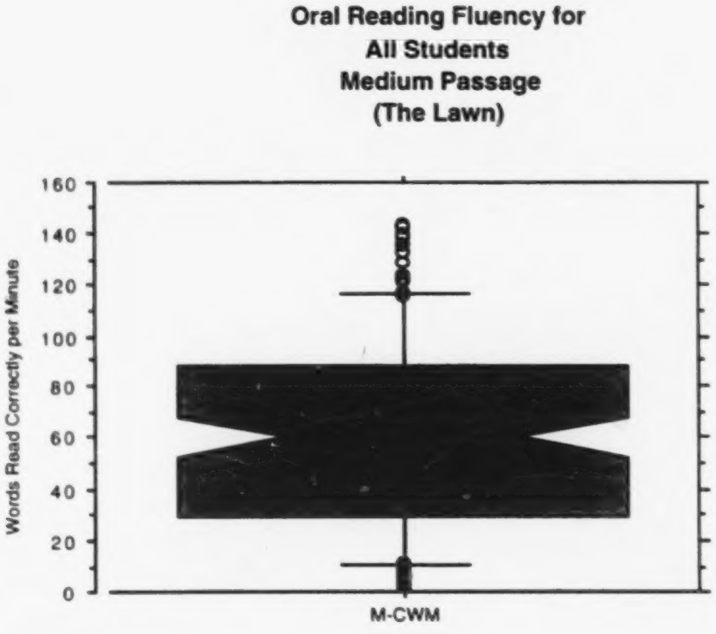


Figure 2. Correct words per minute tatistics for oral reading fluency tasks.

Summary

Plans for data utilization have expanded during each project year. Teachers will be using assessment information in numerous contexts throughout the project. Additionally, observations and consultation opportunities have been structured to enhance communication with other team members and specialists. Teachers have a much broader and more accurate base from which to make decisions about students, curriculum, and program structure. Finally, reporting procedures are being developed to share information with parents and the community at large regarding student performance in all nongraded primary classrooms.

As the project moves into years three through five of implementation, further development of assessment materials is planned. Teachers are interested in measuring areas of philosophic import beyond basic academics. Additionally, the University of Oregon is interested in monitoring the methods and procedures the teachers use for adaptation and inclusion of students with special needs in the nongraded primary settings.

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Developing a School-wide Discipline Plan: Addressing All Students, All Settings and All Staff

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A NUMBER OF DISTURBING TRENDS FACE PUBLIC SCHOOLS TODAY THAT RELATE TO SCHOOL discipline, violence, gangs, and the management of problematic student behavior (Walker, Colvin & Ramsey, 1994). Communities are becoming more alarmed about the physical safety of their students and teachers. Incidents of street crime (for example homicide, drive-by shootings, theft, assault, rape, vandalism) are dramatically increasing and are spilling over to our schools with devastating consequences. It can no longer be said that schools are safe havens for anyone (Kauffman, 1994). As a society and profession, we must accept this challenge to restore school discipline and re-establish appropriate school behavior so that (a) our schools can become safe places and (b) the essential school functions of teaching and learning can be realized more effectively.

The solution to these problems requires a multidimensional approach that includes effective application of such factors as long term planning, adequate funding, emphasis on preventive as well as reactive measures, and constructive collaboration between many agencies such as public schools, law enforcement, youth services, children services, and state and local agencies. One critical component for public schools should be a well defined, empirically based, proactive, and comprehensive school-wide discipline plan. Sugai, Kameenui and Colvin (1990) developed a model, Project PREPARE, to enable public schools to meet the challenges of classroom and school-wide discipline needs. Cascade Middle School in Eugene, Oregon, field tested the model over a two year period. The purpose of this paper is to describe the components of the school-wide discipline model developed in Project PREPARE and field-test results of the implementation at Cascade Middle School. There are five sections:

1. Foundations of a proactive school discipline plan based on empirical findings and best practices
2. Implementation procedures at Cascade Middle School
3. Curriculum components of Project PREPARE
4. Data analyses
5. Results and conclusions

Foundations of a Proactive School Discipline Plan Based on Empirical Findings and Best Practices

The proactive school-wide discipline plan presented in this model is comprised of several components that have been have been identified from research findings and effective school practices. These basic assumptions constitute the foundations for the discipline plan.

Establish Agreement Between Staff on a Basic Approach to Managing Behavior

Clearly a school-wide discipline plan will not be effective if staff approach behavior in significantly different ways.

We recommend an "instructional approach" for establishing a schoolwide discipline plan that is based on procedures for providing instruction on academic skills. The basic approach is that if we want students to routinely demonstrate appropriate behavior, then we have to provide instruction on these behaviors in the same way as we would provide instruction to teach academics and other skills.

Establish School Discipline as an Instrument for Student Success

The purpose of a school-wide discipline plan is to serve as an instrument in enabling instruction and learning to take place effectively and efficiently. In this sense, discipline is subordinate to the school mission and goals.

Utilize and Rely on Proactive Approaches

A significant trend in managing behavior at a school level is the shift towards more positive, preventive, constructive, and problem solving approaches, as distinct from punitive or reactive approaches. Educators are finding that students are more responsive to these positive approaches and that the more difficult students are more likely to cooperate. In addition, school personnel are finding that these proactive procedures are more consistent with the teaching practices for instruction.

The Principal Must Provide Visible and Supportive Leadership

In many respects the principal is the key. School-wide discipline plans need to be carefully planned, adopted, and implemented by all staff. This will not occur unless the principal takes a highly visible and supportive role.

Staff Must Rely on Collegial Commitment

All staff need to present a united front in being actively involved and committed in working together to develop, implement and maintain the school-wide discipline plan. To establish a consistent, predictable school environment, all staff need to implement the plan with a high degree of fidelity.

Utilize Effective Staff Development and Teacher Change Practices

Traditional staff development practices in the form of inservices, workshops, and consulting services generally do not bring about significant changes in staff development or teacher change. Variables that have demonstrated effectiveness in bringing about teacher change are collegiality in terms of staff working together, a comprehensive framework or philosophy, and the concreteness and simplicity of the proposal.

Implementation Procedures at Cascade Middle School

After the principal and staff at Cascade Middle School established school discipline as a number one priority, an agreement was established between the staff and Project PREPARE staff from the University of Oregon. Essentially, respective tasks were delineated, basic outcomes were identified, and a overall process was developed. The most critical components of the agreement were the formation of a building team to work closely with the Project PREPARE Manager and regular access to all staff. The first fifteen minutes of each staff meeting held every other week were dedicated to school-wide discipline and four steps were developed to establish the building team:

1. Disseminate descriptions and information about the responsibilities and activities of the team and its members.
2. Disseminate information about the criteria for selecting team members.
3. Identify a process for selecting team members.
4. Selection of team members.

Team Responsibilities

The responsibilities and general activities of the team were carefully delineated. The following list summarizes the major responsibilities, tasks, and activities: (a) attend weekly planning meetings with the Manager for Project PREPARE, (b) identify current school-wide discipline products and practices, (c) evaluate the effectiveness of current practices, (d) revise the description of school-wide practices, (e) assist in developing and field testing new or revised strategies, and (f) conducting portions of regular staff meetings (every other week) to lead all staff in the development, revision, and implementation of the school-wide discipline plan.

Selection Criteria for Building Team

The principal presented criteria for selecting the team for staff to discuss and elaborate. In general, each team member had to (a) represent a working group in the building (e.g. administration, certified staff, and non-certified staff, (b) have reasonable professional credibility with staff given the leadership role of the team, (c) have a commitment to the time and energy needed for the role.

Team Selection Process

The principal discussed a process for selecting the team. The selection options included (a) call for volunteers, (b) election by peers within staff divisions, and (c) administrative appointments, and (d) some combination of the above.

Selection of Team Members

The building team was ultimately comprised of nine staff members: vice-principal, school counsellor, five general education teachers with representatives from each grade level, and two special education teachers. A paraprofessional was added to the team in subsequent Project PREPARE implementations.

Curriculum Components of Project PREPARE

A proactive school-wide discipline curriculum was developed based on a review of research findings and best practices. The curriculum consisted of five major related components: (a) statement of purpose, (b) school-wide behavioral expectations, (c) continuum of procedures for establishing expected behaviors, (d) continuum of procedures for correcting problem behavior, and (e) procedures for record keeping, evaluation, and dissemination. These five components are represented in Figure 1.

Each curriculum component was systematically reviewed, adapted, and implemented at Cascade Middle School over a two-

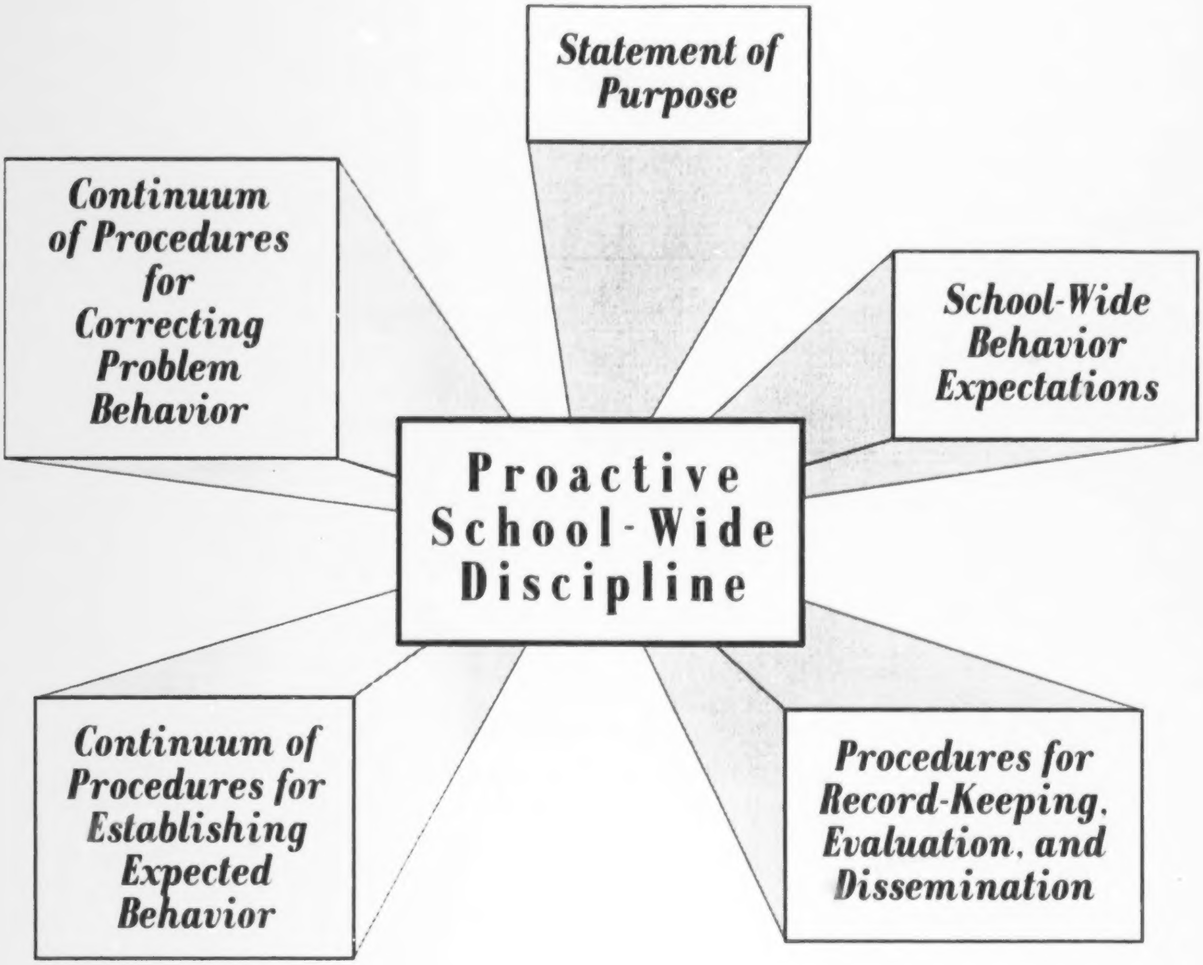

Statement of Purpose
Continuum of Procedures for Correcting Problem Behavior
School-Wide Behavior Expectations
Proactive School-Wide Discipline
Continuum of Procedures for Establishing Expected Behavior
Procedures for Record-Keeping, Evaluation, and Dissemination

Figure 1. Curriculum components of Project PREPARE.

year period, 1992-1994. The respective components are briefly described with illustrations from Cascade Middle School and other schools.

Statement of Purpose

The purpose of a school-wide discipline plan is to establish and maintain student behaviors that enable the accomplishment of school goals. In this sense, discipline provides a *structure* that enables teachers and students to engage in the learning process so desired academic and social outcomes can be achieved. The intent of the purpose statement for a school-wide discipline plan is to capture and crystallize the explicit objective of a discipline plan.

Example of a School-wide Purpose Statement

The purpose of the school-wide discipline plan at Cascade Middle School is to:

Ensure a safe positive environment for teaching and learning

School-Wide Behavioral Expectations

School-wide behavioral expectations are defined as those rules about desirable behaviors or actions that facilitate the teaching and learning process, and the efficient operation of a school-wide discipline plan. School-wide behavioral expectations are designed for (a) *every setting* in the school (e.g., classrooms, hallways, buses, cafeteria, gymnasium, recess, restrooms, and locker rooms) and (b) *specific* school settings that have *unique* features requiring additional behavioral expectations.

Guidelines

When identifying and stating school-wide behavioral expectations, the following guidelines were considered:

1. Limit the number of behavioral expectations to three or four.
2. State in positive terms using common language and as few words as possible.
3. Identify specific behaviors to illustrate the range of acceptable variations.
4. Identify clear positive and negative examples to illustrate each behavioral expectation.
5. Define a clear process and specific time lines for identifying behavioral expectations:
    a. Identify participants (e.g., certified and non-certified staff, students, parents, community leaders).
    b Specify a process (e.g., large group, small group, grade level, department).
    c. Specify a staff and student training and dissemination plan.

Examples of Behavioral Expectations at Melbourne Middle School

1. "To provide a safe and orderly environment for learning."
2. "To cooperate with others."
3. "To manage one's self."
4. "To respect the rights and property of others.

Continuum of Procedures for Establishing Expected Behavior

The initial focus for staff in working with their students on a school-wide discipline plan is to stress the school-wide behavioral expectations. A continuum of three steps was used to establish these expectations: (a) school-wide recognition programs, (b) informal teaching plans, and (c) formal behavior instruction plans.

School-Wide Recognition Plans

One of the most common concerns among staff regarding school discipline plans is that there is too much emphasis on problem behavior. A school discipline plan needs to have structures that are designed to provide a balance between attention given to problem behavior and attention to expected behavior. One strategy for providing this balance is to develop and implement school-wide practices for acknowledging demonstrations of acceptable behavior. These practices are called "school-wide positives" and can range from trophies for exemplary leadership and citizenship presented at the school assembly, to "caught in the act" coupons distributed in the hallways to students who are talking quietly and moving in an orderly manner. The variables to be considered in developing school-wide positives are: (a) title, (b) award, (c) criteria, (d) presentation of award, and (e) dissemination. Two examples of school-wide recognition awards are presented in Table 1.

Informal Teaching Plans

Teachers typically use three steps when they teach a task:

***Pre-Teaching*.** This step includes the activities teachers engage in with the students before the students have an opportunity to demonstrate the skill independently. The activities include explanations, discussions, op-

Table 1. Example of School-Wide Positives for Alice Springs Elementary School

Title	*"Self Manager"*	*"Gotcha"*
Award	*Button.* *Privileges* *- in hallways without pass* *- early release (1-2 minutes maximum) from class where appropriate* *- free seating for assemblies* *- early lunch* *- self-manager lunch table* *- extra computer time*	*Sign in at office.* *Sticker.* *Monthly raffle at awards assembly in class, school-wide, special).*
Criteria	*Satisfactory grades.* *Follow school rules.* *No discipline referrals.* *Class work completed.* *Five staff signatures (e.g., teacher, teaching assistant).* *Students listed in office for all staff to review.*	*Demonstrations of school-wide expected behavior.*
Presentation	*Monthly award assembly.*	*Individual staff member.*
Dissemination	*Honor roll list in classroom.* *Parent notes.* *"Dolphin Tales"*	*Signed book kept at office (name & room).*

tions, verbal rehearsal, modeling, role-playing, and practice.

Active Supervision. In this step, the students have an opportunity to demonstrate the skill independently under the watchful eye of the teacher. The teacher usually moves around providing encouragement, prompts, and corrections as needed.

Follow-Up. Once the students have finished working on the task independently, the teacher provides feedback which may include additional tips, encouragement, praise, prompts, reinforcers, and consequences as appropriate.

These same three steps can be used by staff to establish expected behavior (and to address problem behavior settings). An illustration is presented in the following example, showing how Cascade Middle School used this teaching plan to teach coming to class on time.

School-Wide Plan to Establish to Teach Coming to Class on Time: Cascade Middle School

Pre-Teach

Explain to the class that the students need to keep moving during passing, that it is OK to chat, but they must keep moving to be on time for class. Provide these reminders just before the students exit the classroom, especially at the most troublesome passing times.

Supervise

Position yourself at the doorways, move into the hallways, and provide prompts as necessary to keep the students moving.

Follow-Up

At the start of the period briefly comment on the students' punctuality. Thank them for being on time. Encourage students who are not on time to try harder next time. Establish positive and negative consequences.

Formal Behavior Instruction Plans

The basic assumption in this model is that the most efficient and effective method for establishing appropriate behavior on a school-wide basis is to *systematically and directly teach* specific behaviors for each behavioral expectation. A formal lesson plan usually has the following steps:

Step 1: Specify behavioral expectations

Step 2: Explain behavioral expectations

Step 3: Provide opportunities to practice behavioral expectations

Step 4: Provide pre-correction for problem settings and individual students

Step 5: Strongly reinforce demonstrations of expected behavior

Step 6: Correct demonstrations of unacceptable behavior

Step 7: Track results and follow-up

Step 8: Review, modify or maintain the plan.

An example from Cascade Middle School for providing instruction on "Coming to Class Prepared" is presented in Table 2.

Continuum of Procedures for Correcting Problem Behavior

In this section we describe the procedures for managing and correcting problem behavior. There are three steps in the model for correcting problem behaviors: (a) carefully define minor problem behaviors, serious school infractions, and develop office referral process and form; (b) implement a continuum of procedures for managing minor problem behaviors; and (c) implement procedures for managing serious school violations.

Define and Categorize Problem Behavior

The type of correction procedures used to manage inappropriate behavior will depend on the severity and frequency of the problem behavior. Problem behavior is separated into minor and serious school violations which would also include illegal behavior. Staff are expected to manage minor problem behavior, and the serious school violations are managed through office referrals by the administration or designees. The specific categories of behavior and corresponding management continuum are presented in the following example.

Staff at Cascade Middle School categorized problem behavior into minor and serious school violations. An office referral form

School-Wide Continuum for Correcting Problem Behavior

Problem Behavior Category	Responsibility
Minor	First: Individual staff. Second: Staff team. Third: Office referral/administration.
Major	First: Administration/building support teams. Second: Law enforcement/administration.

Table 2. Example School-Wide Behavior Instructional Plan: "Coming to Class Prepared"

STEP 1:	**SPECIFY BEHAVIORAL EXPECTATION(S)**
	Be prepared for class with necessary materials: Bring supplies (notebook, pencil sharpener, paper, homework, text book); materials in reasonable shape, and organized notebook .
STEP 2:	**EXPLAIN BEHAVIORAL EXPECTATION(S)**
TIMES:	*First 5 minutes of each class period.*
PROCEDURES:	*Discussion on relationship between preparation and classroom success; describe supply list; describe organized notebook; send letter of explanation to parents.*
STEP 3:	**PROVIDE OPPORTUNITIES TO PRACTICE BEHAVIORAL EXPECTATIONS**
TIMES:	*First 5 minutes of each class period.*
PROCEDURES:	*Conduct class discussion, organize notebook, prepare chart, review weekly.*
STEP 4:	**PROVIDE PRECORRECTION FOR PROBLEM SETTINGS & INDIVIDUAL STUDENTS**
TIMES:	*Beginning and end of period.*
PROCEDURES:	*Give verbal reminders, hand out self-check sheet, distribute list of supply needs, remind to chart.*
STEP 5:	**STRONGLY REINFORCE DEMONSTRATIONS OF EXPECTED BEHAVIORS**
TIMES:	*Verbal acknowledgment at the beginning of period, when criteria met (80%) for rewards*
PROCEDURES:	*Verbally praise, distribute rewards (80% class, stars, access to free time, computer time, treats).*

Table 2. Continued

STEP 6: **CORRECT DEMONSTRATIONS OF UNACCEPTABLE BEHAVIOR**

TIMES: *At all times.*

PROCEDURES: *Use hierarchy of correction consisting of (a) reinforcing students who are prepared (planned ignoring), (b) reminding students not prepared, (c) providing warning and implementing negative consequence.*

STEP 7: **TRACK RESULTS AND FOLLOW-UP**

TIMES: *Daily.*

PROCEDURES: *Chart (frequency of students prepared for class). Raise class criteria to 90%, add extra homework, send letter to parents.*

STEP 8: **REVIEW, MODIFY, OR MAINTAIN THE PLAN**

TIMES: *Every three or four weeks.*

PROCEDURES: *Review results, discuss results with class. Decide to modify or maintain plan based on progress.*

was developed on the basis that serious school violations would warrant an office referral, whereas minor problem behavior would be managed by staff. Staff met on a regular basis, with leadership from the team, to categorize problem behavior. The following categories were used as a basis to organize their system.

Minor School Infractions are regarded as relatively mild behaviors, but they are disruptive to the teaching and learning process and can easily escalate into more serious behavior. Common examples include being tardy for class, talking too loudly in the hallways, not having materials for class, and skipping school (truancy). These behaviors are typically managed immediately and quickly by staff in the context in which the behavior occurs.

Serious School Violations are not law infractions, but represent serious breaches of school rules and seriously disrupt school functioning (for example, sustained noncompliance and defiance, verbal abuse toward staff, low levels of physical aggression, vandalism, and chronic [repeated] minor infractions). These behaviors typically warrant an office referral and are managed by the administration or designee.

Illegal Behavior is in violation of the law. Examples include possession of weapons or controlled substances, theft, assault, vandalism, and intimidation. This list should be confirmed with local law enforcement agencies and district policies. These behaviors typically warrant office referrals and are managed by the administration (or designee) in conjunction with local law enforcement agents.

The list and definitions for serious school violations developed by Cascade Middle School are presented in Table 3.

Once the serious problem behaviors were identified, an office referral form was developed. The form was printed on NCR paper with the office referral information on the front of the form and the serious school violation definitions on the back. The office referral form is presented in Figure 3.

Continuum of Procedures for Managing Minor Problem Behavior

There are three steps in this continuum: (a) management by the individual teacher, (b) management through staffings, and (c) office referrals.

Management by the Individual Teacher. The first step is for individual teachers to utilize a full range of management options in the classroom (Walker, Colvin & Ramsey, 1995; Wolery, Bailey & Sugai, 1988). One strategy worth separating and highlighting is the systematic use of attention to correct minor problem behavior. We recommend the following continuum:

1. Remove adult and peer attention from the student who is displaying inappropriate behavior, and acknowledge other students who are exhibiting the expected behavior. For example, Sarah is talking loudly in class. Her teacher turns her back slightly to Sarah and looks at a student who is working quietly. The teacher says, "Students in this row are doing a great job talking to their neighbors in a conversational voice."

2. Re-direct the student to the expected behavior with a gesture or verbal prompt, and positively acknowledge subsequent compliance and displays of expected behavior. The teacher gives Sarah a signal by placing her finger next to her lips and saying, "Remember Sarah, please use a conversational voice."

3. Secure the student's attention and clearly inform him or her of the expected behavior, provide immediate opportunities for practice, and acknowledge compliance and displays of expected behavior. For example, the teacher says, "Sarah, please listen carefully. If you wish to talk, use a conversational voice. Now tell me quietly what you want." When Sarah uses a quiet voice, the teacher says, "There you go, Sarah; that was a perfect conversational voice."

4. Deliver a warning by providing an opportunity for the student to choose between the expected behavior and a penalty or loss of privilege. For example, the teacher says, "Sarah, you need to go to class or you may miss some recess."

5. Deliver the penalty or loss of privilege (e.g., loss of some recess time) quickly and in as business-like form as possible. Do not linger or nag at the student.

6. Use additional resources to address the problem. If there is no improvement of the student's behavior after three or four occasions in which a planned intervention has been implemented, the teacher should set in motion procedures in which additional resources are directed at the problem. At this point we recommend a staffing.

7. Keep records and documentation. The individual staff member should keep some kind of records or documentation of the minor problem behavior and the interventions used to address the problem. Staff should be in agreement on the purpose of these records, dissemination procedures, specification of problem behavior, and strategies used. A worksheet is provided (Figure 4), followed by an example form for documenting minor problem behavior (Figure 5).

Management by Staffings

If the minor problem behaviors still persist after an individual staff member has made

Table 3. Working Definitions for Office Referral Infractions

This example illustrates the working definitions for infractions that could result in an office referral. These definitions were developed by teaching staff at a middle school.

FREEMANTLE MIDDLE SCHOOL
Working Definitions for Office Referral Infractions

INFRACTION	DEFINITION
Repeated Minor	*Recurring problems that have been addressed by teacher(s), such as tardies, skipping classes, minor disruptive behavior, profanity, incomplete assignments, minor harassment, and not coming to class prepared.*
Fighting	*Action involving serious physical contact where injury may occur, (e.g., hitting, punching, hitting with an object, kicking, hair pulling and scratching).*
Vandalism	*Substantial destruction or disfigurement of property.*
Controlled Substances	*In possession of or using drugs, alcohol, and/or tobacco.*
Serious Disruptions	*Behavior causing class or activity to stop, or continue with difficulty. Student does not cooperate and does not make reasonable attempts to disengage or follow directions. These behaviors include sustained loud talk, noise with materials, horseplay or roughhousing, and sustained out of seat behavior.*
Verbal Abuse	*Sustained profanity,and/or sexual comments directed toward staff or students.*
Weapons	*In possession of knives, guns, or other items used as weapons.*
Defiance	*Refusal to follow staff directions.*
Off Campus	*Outside the boundaries of the school grounds without permission.*
Theft	*In possession of, having passed on, or being responsible for removing someone else's property.*
Other	*Serious behavior problems that do not fit into the above categories.*

BUNBURY MIDDLE SCHOOL
Phone 555-1234
123 Olga Road, Eugene, Oregon, 97403

OFFICE REFERRAL

STUDENT ______________________ GRADE 6 7 8 DATE ____________

REFERRED BY ______________________ HOMEROOM TEACHER ____________

REASON FOR REFERRAL

☐ REPEATED MINOR INFRACTION(S)

Description: ____

☐ For the Record and Staffing Plans attached

☐ SERIOUS SCHOOL VIOLATION

☐ Fighting ☐ Verbal Abuse ☐ Controlled Substance(s) ☐ Serious Disruption
☐ Vandalism ☐ Weapons ☐ Off Campus Violation ☐ Defiance

☐ Other ____

Description: (Specify times, places, those involved, relevant conditions, and initial steps to address problem.)

ACTION TAKEN: (By teacher/person making referral as appropriate)

☐ Conference with student ☐ Contract made w/student ☐ In-House Suspension
☐ Parent contact (phone/note) ☐ Parent conference requested ☐ Recommended

☐ Other ____

ACTION TAKEN: (By administrator/counselor)

☐ Conference with Student ☐ Conference requested with teacher and student
☐ Parent contacted (phone/note) ☐ Parent conference requested
☐ Referral to School Discipline Team ☐ Principal's Hearing for possible expulsion
☐ Student suspended: ___In-School ___Out of School ___Number of days

☐ Other ____

COMMENTS: ____

White: Student file *Canary*: Parent
Blue: Office *Goldenrod*: Counselor
Green: Homeroom *Pink*: Referring Staff

____
(Principal, Assistant Principal, Counselor)

PARENTS (GUARDIANS): This copy is of an office referral for your son or daughter made by a staff member at Bunbury Middle School Staff. Please note the action taken. Please call us at 555-1234 if you have any questions.

Figure 3. Example office referral form.

Documentation of Minor Problem Behavior

Purpose

1. ____
2. ____
3. ____

Dissemination

1. ____
2. ____
3. ____
4. ____

Discipline Continuum

1. ____
2. ____
3. ____

Specification of Minor Problem Behavior(s)

1. ____
   ____
   ____
2. ____
   ____

Interventions

1. ____
   ____
   ____
2. ____
   ____
   ____
3. ____
   ____

Figure 4. Worksheet for documenting minor problem behaviors.

several documented attempts to correct the problem, the next step involves setting up a staffing. A staffing consists of a group of teachers meeting to share some suggestions for managing the minor problem behavior. The meeting can be called on an informal basis or could be part of a regular meeting that the teachers may hold, such as a weekly grade level meeting. The guidelines for implementing staffings are:

1. A staffing may be called by the homeroom teacher after three to five documented incidents of the minor problem behavior has occurred.
2. The staffing is scheduled for the regular grade level meetings.
3. A special staffing may be called if the homeroom teacher needs more immediate action (with as many grade level teachers in attendance as possible).
4. The top part of the form should be filled in by the homeroom teacher before the meeting.
5. Identify a note-taker and a time keeper. It is critical to follow the agenda and keep the timelines, otherwise the meetings will take too long.
6. Prioritize the problem behaviors (list no more than two).
7. The expected behaviors should follow from the problem behaviors.
8. Choose the least intrusive, least time-consuming strategies if possible (make one to three selections). More involved strategies could be used later if the student is not responding.

Documentation of Minor Problem Behavior

Purpose

1. Documenting student behavior (positive and negative).
2. Document action or consequences taken on student behavior.
3. Establish paper trail or file on student behavior for grade level staffings as appropriate.

Dissemination

1. Office of filing.
2. Staff for notification (as appropriate).
3. Parents for notification (as appropriate).
4. Student for notification (as appropriate).

Discipline Continuum

1. Functions as part of the school discipline continuum.
2. Consequences or action managed by teachers.

Specification of Minor Problem Behavior(s)

1. Student late for class.
2. Student is not prepared for class (having the correct materials).

Interventions

1. Followed continuum from ignoring and acknowledged students who were on time and prepared, to implementing a warning and loss of break.
2. Offered incentive program where if he was on time and prepared he could take an extra break.

Figure 5. Example filled out worksheet for documenting minor problem behaviors.

9. Choose the least negative consequence the first time around. (The consequences can be strengthened if the student is not responding.)

10. Complete all paperwork and distribute copies *immediately* after the meeting.

11. Develop and implement a form to be used for staffings. The form developed by Cascade Middle School is presented in Figure 6.

Office Referral

If the problem behavior persists following at least one documented staffing, an office referral is made. The administration or designee follow up on the behavior with the understanding that chronic minor behavior is now serious behavior.

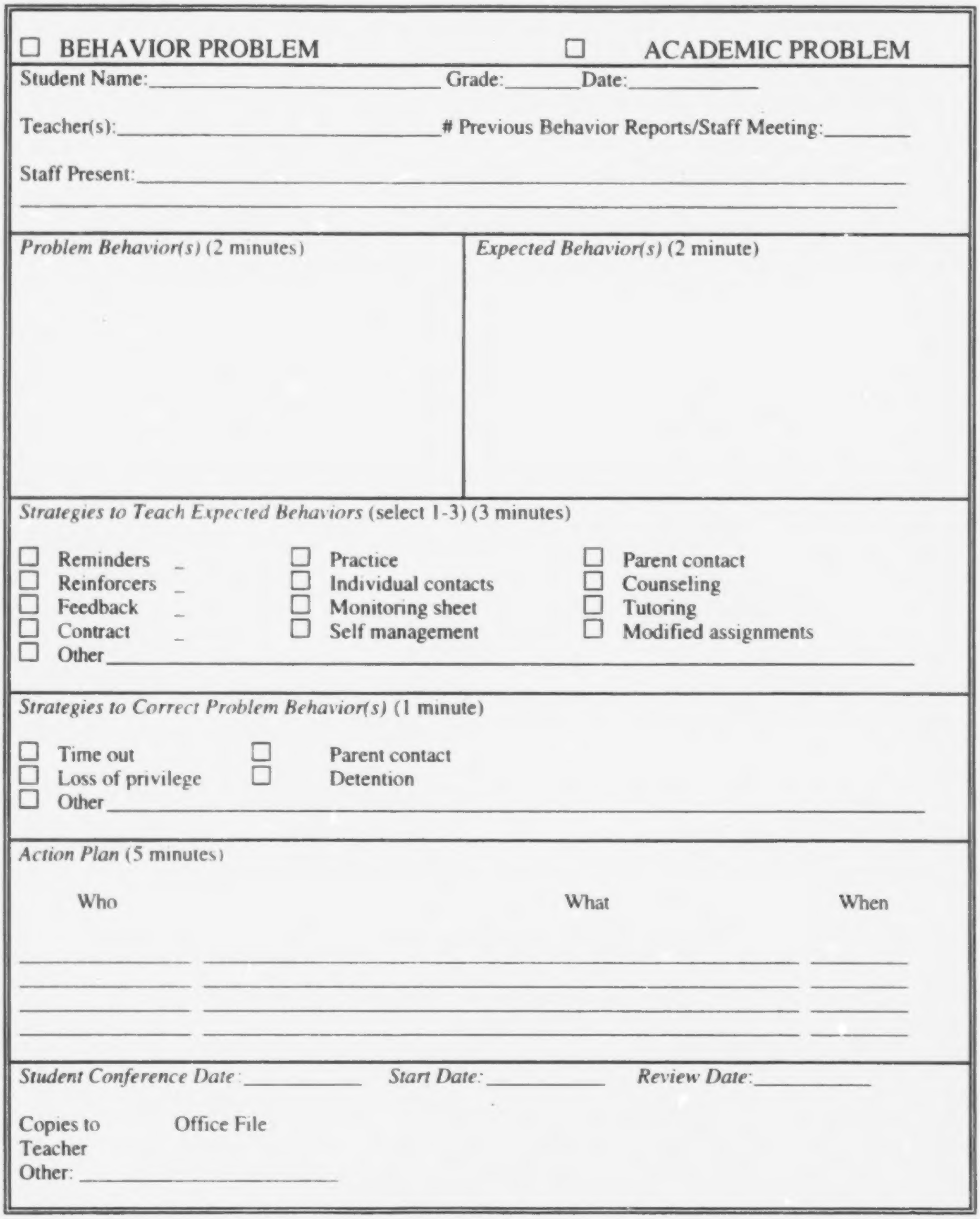
Continuum of Procedures for Managing Serious School Violations

Serious school violations require actions and follow-up that involve more staff effort, time and more intrusive interventions. These consequences should be written in school policy and delivered automatically and consistently. All parents should be informed of the procedures at the start of a school year and should receive a written copy. Staff should be clear about what their responsibilities are, and who delivers the consequences. Typically, an office referral is made, and an administrative staff person delivers the consequence. Clear guidelines need to be established for behaviors that warrant office referrals, and all building staff must have a clear understanding of what behaviors result in an office referral and what procedures will be followed by the office. Without clear guidelines for serious school violations, friction may occur between referring staff and office staff when office referrals are made for minor behaviors, or when a referring staff person expects certain consequences to be delivered which do not occur.

Typical consequences for serious school violations include parent conferences, after-school detention, in-school suspension, suspension, and expulsion. It is important to keep track of the number of office referrals; date, period, time, and location for each infraction and consequence; referring staff person; outcome of de-briefing sessions; and follow-up events. Repeated office referrals should be a signal that a student needs more assistance in learning and displaying expected behaviors. Students who have repeated displays of serious school violations should be referred to a school-wide behavior support team (e.g., teacher assistance team) to develop a specific individual plan that is designed to help reduce and eliminate the problem behavior pattern, and to establish opportunities for displays of expected behaviors.

Procedures for managing behaviors that are against the law (illegal behavior) usually involve an office and a police referral. A clear procedure should be established for handling illegal behavior (e.g., documentation, witnesses). Local law enforcement agencies should be contacted for guidelines or criteria for handling illegal behaviors and working with their agency. Procedures for contacting parents also must be established. We recommend two basic approaches to managing these serious school violations:

1. Develop a reasonable balance between proactive and reactive consequences. Unfortunately, the most common actions taken following an office referral are reactive in nature and often punitive (for example, detention, suspension, and loss of privileges). Clearly students need to know limits. However, having only negative consequences for managing these behaviors leads to an ineffective and often hostile school environment. The recommended practice is to create a careful balance and combination between proactive and reactive approaches. Proactive approaches refer to those constructive strategies that are designed to replace the problem behaviors with acceptable behavior.



☐ BEHAVIOR PROBLEM ☐ ACADEMIC PROBLEM

Student Name:____________________ Grade:______ Date:__________

Teacher(s):____________________ # Previous Behavior Reports/Staff Meeting:_______

Staff Present:____

Problem Behavior(s) (2 minutes)

Expected Behavior(s) (2 minute)

Strategies to Teach Expected Behaviors (select 1-3) (3 minutes)

☐ Reminders _
☐ Reinforcers _
☐ Feedback _
☐ Contract _
☐ Practice
☐ Individual contacts
☐ Monitoring sheet
☐ Self management
☐ Parent contact
☐ Counseling
☐ Tutoring
☐ Modified assignments
☐ Other____________________________________

Strategies to Correct Problem Behavior(s) (1 minute)

☐ Time out
☐ Loss of privilege
☐ Parent contact
☐ Detention
☐ Other____________________________________

Action Plan (5 minutes)

Who	What	When

Student Conference Date:________ *Start Date*:________ *Review Date*:________

Copies to Office File
Teacher
Other:__________________

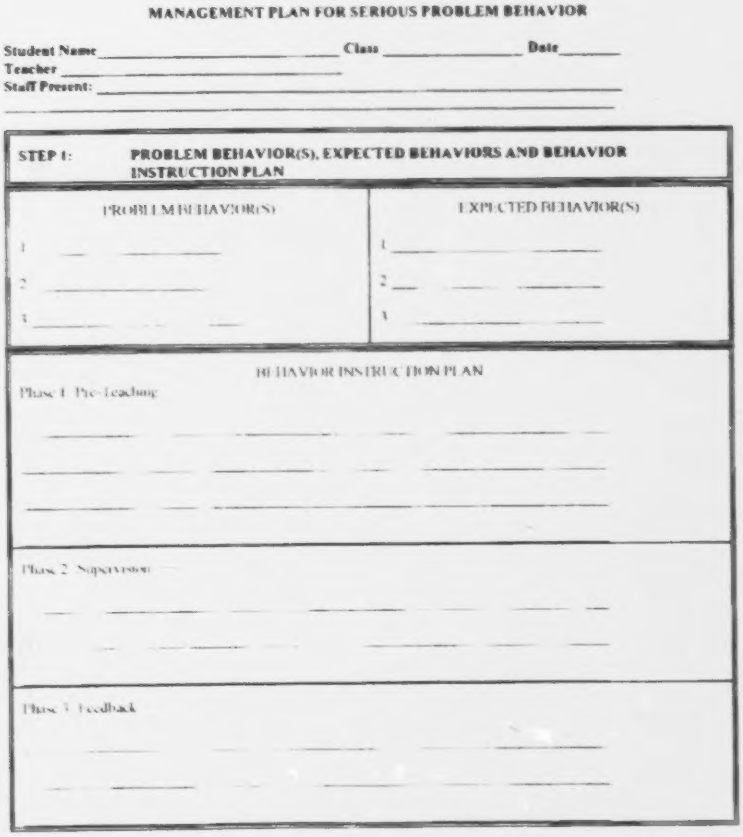
Figure 6. Example of staff meeting form for minor problem behavior: Cascade Middle School.

These strategies include conferences, precorrection, counseling, contracts, and behavior instruction plans. The recordkeeping system should reflect a balance between proactive and reactive strategies.

2. Utilize a School-Wide Behavior Support Team. This team has the specific task of developing a detailed plan of assistance for students who exhibit recurring serious problem behavior. The planning and implementation of these plans take a considerable amount of time. Consequently, it is important that the case load for this team be kept to as few as possible (three to four a term).

The following guidelines should be considered in forming a school-wide team:

1. Develop a clear statement of purpose and list of team responsibilities.
2. Determine who should be on the team and how the selections are to be made.
3. Establish guidelines for meeting days, times, length, and agenda items.
4. Develop a specific form for planning and implementation. The form used by Cascade Middle School is presented in Figure 7.



MANAGEMENT PLAN FOR SERIOUS PROBLEM BEHAVIOR

Student Name ______________ **Class** ________ **Date** ______
Teacher ______________
Staff Present: ______________

STEP 1: PROBLEM BEHAVIOR(S), EXPECTED BEHAVIORS AND BEHAVIOR INSTRUCTION PLAN

PROBLEM BEHAVIOR(S)	EXPECTED BEHAVIOR(S)
1 ______	1 ______
2 ______	2 ______
3 ______	3 ______

BEHAVIOR INSTRUCTION PLAN

Phase 1: Pre-Teaching

Phase 2: Supervision

Phase 3: Feedback

Figure 7. Management plan for serious problem behavior.

STEP 2: PROBLEM CONTEXTS, TRIGGERS AND PRE-CORRECTION

PROBLEM CONTEXTS & TRIGGERS	PRE-CORRECTION PLAN

STEP 3: MAINTAINING FACTORS AND REPLACEMENT STRATEGIES

Attention getting behaviors	Replacement Strategies
Avoidance Behaviors	Replacement Strategies
Control Seeking Behaviors	Replacement Strategies

STEP 4: AGITATION SIGNS AND PREDICTOR BEHAVIORS RE-DIRECTING AND CALMING PROCEDURES

AGITATION SIGNS AND PREDICTOR BEHAVIORS	RE-DIRECTING & CALMING PROCEDURES

STEP 5: ESCALATING PROMPTS AND ALTERNATIVE STRATEGIES

ESCALATING PROMPTS	ALTERNATIVE STRATEGIES

Figure 7. Continued.

STEP 6: PREFERRED ACTIVITIES, INTERESTS AND APPLICATIONS

PREFERRED ACTIVITIES & INTERESTS	APPLICATIONS

STEP 7: NON SCHOOL-BASED FACTORS AND FOLLOW-UP PROCEDURES

NON SCHOOL BASED FACTORS	FOLLOW-UP PROCEDURES

STEP 9: OTHER FACTORS AND STRATEGIES

OTHER FACTORS	STRATEGIES AND PROCEDURES

ACTION PLAN

PREFERRED STRATEGIES	SET-UP TASKS	PERSON RESPONSIBLE
1	1	1
2	2	2
3	3	3
4	4	4

CRISIS MANAGEMENT

CRISIS BEHAVIORS	SAFETY PROCEDURES

TRACKING PROCEDURES

START DATE ____________ REVIEW DATE ____________

Figure 7. Continued.

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Procedures for Record Keeping, Evaluation, and Dissemination

A student tracking system is a recordkeeping system in which information about the effects of the school-wide discipline system are monitored. This system might collect information at the school-wide, classroom, and/or individual student or teacher levels on attendance patterns, as well as the number and kinds of (a) problem behaviors occurring, (b) negative and positive referrals made, and (c) detentions and suspensions assigned. Information about which staff persons are involved in discipline-related activities also can be tracked.

Student tracking systems are important because they help to (a) ensure that the school-wide plan is being implemented on a planned and consistent basis, (b) frequently remind staff of the importance of its discipline plan, and (c) provide information on whether the discipline plan is accomplishing its goals. The components of a student tracking system or monitoring plan should include the following:

1. A checklist to measure whether the various steps in the plan have been identified, defined, and implemented.
2. Strategies and forms for keeping records of both expected and inappropriate behavior.
3. Data decision rules for reviewing and revising the plan.
4. A screening strategy for identifying students who are at-risk for social behavior failures.

The success of any plan to teach and manage behavior must include specific procedures for ensuring the accurate and continued implementation of its procedures. Similarly, a means of collecting and evaluating data on student behavior and staff performance also must be developed. The following should be considered:

1. Identification of an individual or group of individuals who can oversee maintenance and evaluation activities.
2. Procedures for collecting on-going and summative data on student behavior and staff performance. Social validation data also should be collected from students, staff, parents, and community representatives.
3. Decision rules and procedures for evaluating student and school data.
4. Procedures for revising and reteaching aspects of the instructional behavior plan that are deficient.

Once the components of the school-wide discipline plan have been developed, the next phase involves developing strategies to disseminate the details and procedures of the plan. If necessary, approvals should be secured before dissemination and implementation. A dissemination plan should include the following:

1. A list of the people or groups of people who need to be familiar with and/or approve the school-wide discipline plan (for example, administrators, certified and uncertified staff members, substitute teachers, district personnel, school board members, students, parents, community personnel, and staff from cooperating agencies).
2. Procedures for identifying and preparing staff persons who can provide training, and monitor and reinforce proper implementation of the procedures of the school-wide discipline plan.
3. Procedures for informing and/or training these people (for example, seminars, video/audio tapes, written handbooks, and peer mentors).
4. Opportunities to provide intensive initial training, as well as regular follow-up training.

Data Analyses

Office referral data were used to assess the effectiveness of the model developed by Project PREPARE and implemented at Cascade Middle School. An archival data recording instrument was designed with categories that recorded the reasons for referral and actions taken. Office referral data were collected at Cascade Middle School (target school) and at another middle school (control school) of similar size, location, and student demographics. Pre-post measures were taken over a two year period (baseline 1991-1992 and intervention 1992-1993). In addition, data were taken for the target school in 1993-1994 to assess maintenance.

The major outcomes were:

1. There was an overall reduction in office referrals at the target school of 51% compared to an increase of 12% at the control school (see Figure 8).
2. Figure 9 shows percentage change in the categories and frequencies of office referrals for the two schools. Cascade Middle School showed substantial reductions in disruption, harassment, fighting, defiance, and other categories; the control school increases in each of these categories.
3. Figure 10 shows the types and frequencies of school consequences implemented for office referrals in Cascade

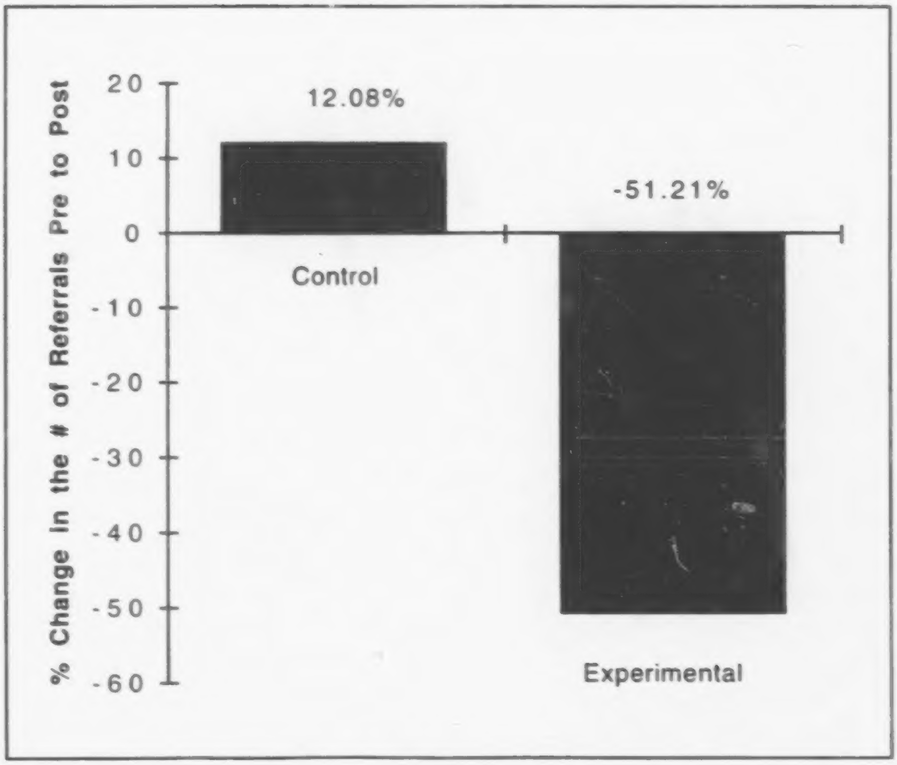

Figure 8. Pre and Post comparisons of total number of referrals.

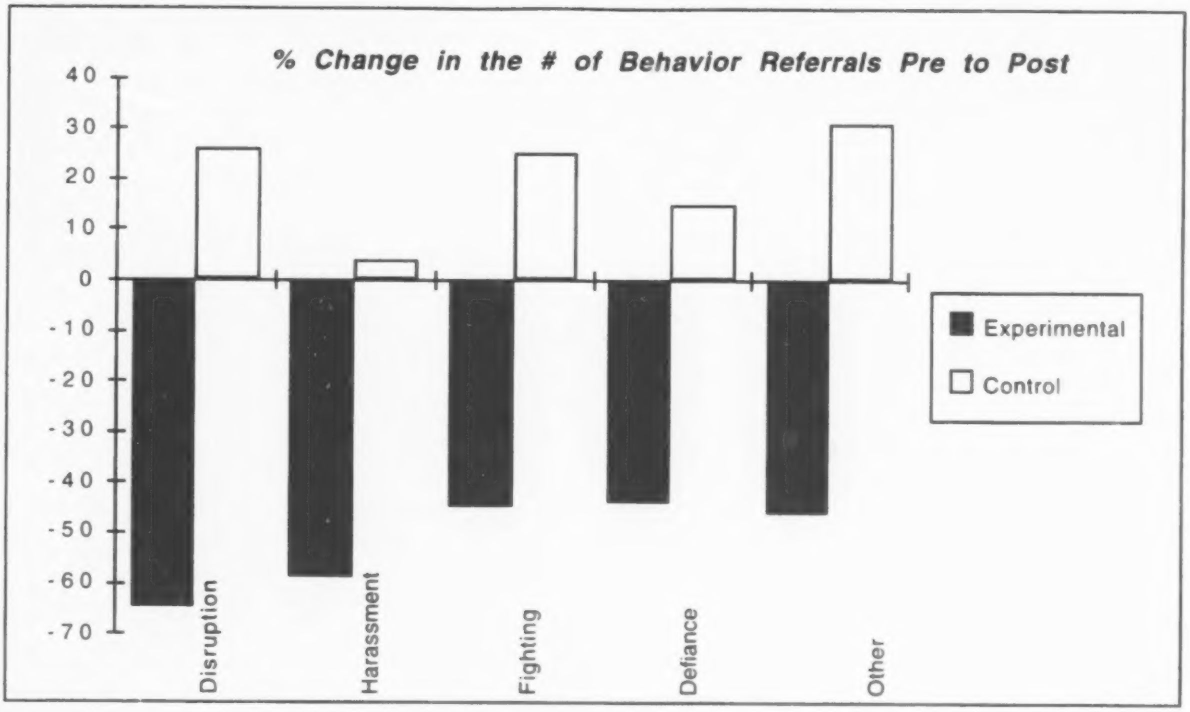

Figure 9. Categorical differences between pre and post.

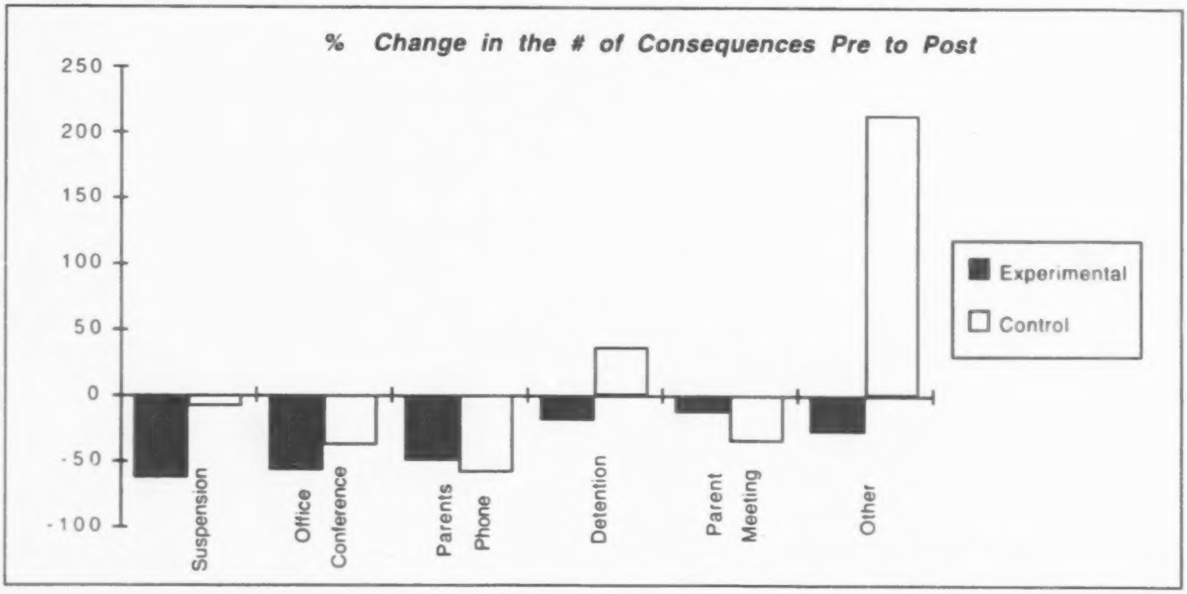

Figure 10. Types and consequences of referrals.

Middle School and the control school. At Cascade Middle School there was a decrease in the use of all categories of consequences. At the control school there were decreases in most consequences except for detention and other.

4. Figure 11 shows the breakdown of categories of office referrals at Cascade Middle School for the intervention period and the following year, the maintenance period. These data show substantial reductions in defiance, harassment and disruption with slight reductions in other categories.

Results and Conclusions

Staff at Cascade Middle School implemented a school-wide discipline plan, developed through Project PREPARE at the University of Oregon. Results showed substantial reductions in office referrals, in general classroom disruptions and teacher and staff defiance, and a substantial reduction in school suspensions. In addition, these results continued the following year without the direct involvement of Project PREPARE staff. That is, staff at Cascade Middle School were able to maintain the plan themselves. It appears that the results were very positive for this school.

Probably the most important factors in accounting for these positive outcomes were the relatively comprehensive school-wide plan developed by Project PREPARE, the strong commitment of all staff to improve their system, the cooperation and on-going shared decision making between all staff, administrative support, and the effective leadership of the school-wide discipline team.

The model needs to be implemented in other schools and settings to determine the

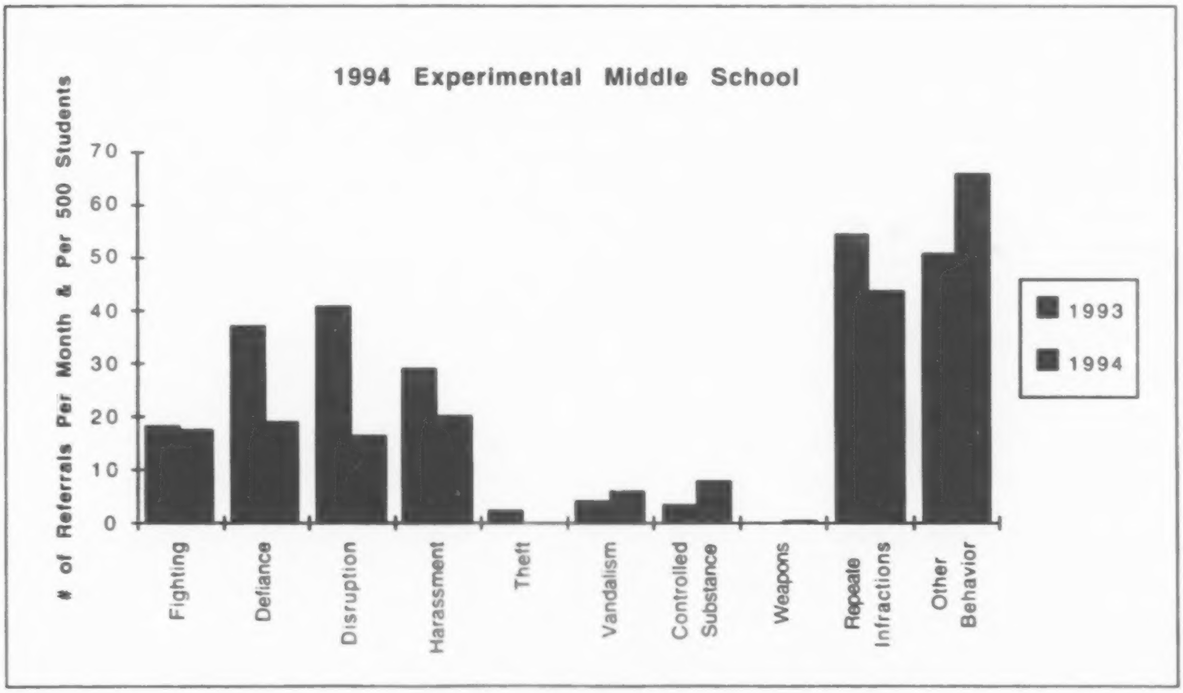

Figure 11. Breakdown of categories of office referrals.

generalizable effectiveness of the plan. In addition, additional observational data needs to be utilized to provide a stronger validation of the program.

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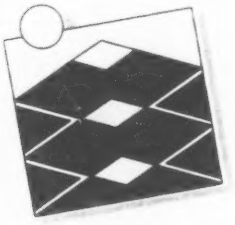
Section V



CLASSROOM PRACTICES

Project LITERACY-HI[1]: Hypermedia for Readers with Hearing Impairments

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AS MARIA[2] WALKS INTO HER 8TH GRADE SOCIAL STUDIES CLASS SHE FACES A HOST OF LEARNING challenges. Like all students, she must listen to lectures, take notes, read textbooks, answer questions, work alone, work in groups, keep track of assignments, complete projects, and take tests. Unlike most of her classmates however, Maria confronts an additional challenge: since birth she has had a moderate to profound sensorineural hearing loss in both ears. This loss is partially compensated for by hearing aids (when they're working), by the presence of an American Sign Language (ASL) interpreter in some classes, and by the help she receives from a teacher for the hearing impaired who works with her once or twice a week. The focus of this assistance is on speech, written language, and vocabulary/reading skills. This all helps, and with Maria's hard work and positive attitude toward school, she gets by. But, when Maria must use her 4th grade reading skills to confront a 8th grade textbook, she is at a severe disadvantage.

Maria's below-average reading skills are typical of students with hearing impairments. Students who have been deaf since birth frequently do not have the experiential, cognitive and linguistic base needed to read fluently beyond the 4th grade level (King & Quigley, 1985). Their reading problems include an inability to (a) process text efficiently, (b) comprehend content or (c) understand text structure (King & Quigley, 1985). Reading comprehension skills are particularly difficult to acquire and the average hearing-impaired student progresses at roughly one third the rate of hearing students on measures of reading comprehension (Wolk & Allen, 1984). Furthermore, these deficits do not appear to improve with age. Although hearing-impaired students' vocabularies tend to increase in adulthood, their reading abilities

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Figure 1. Maria.

do not (Hammermeister, 1971; King & Quigley, 1985). For example, Trybus & Karchmer (1977) found that at age 20, the median reading grade level of 6,871 hearing-impaired individuals was only 4.5 and only 10 percent could read above the 8th grade level.

There are very good reasons why acquiring information from text written beyond the 4th grade level is so difficult for students with hearing impairments. Hearing-impaired students have difficulty with the uncontrolled vocabulary of more advanced text materials because their receptive and expressive vocabularies are limited (Cartwright, Cartwright, & Ward, 1989) and significantly more concrete than those of hearing children (Lowenbraun & Thompson, 1986). Furthermore, hearing-impaired students have difficulty handling the higher concept load and more abstract use of language found in advanced texts because they do not have the experiential and linguistic expertise to comprehend what the author is trying to convey. Figurative language is another challenge for hearing-impaired students (Boatner & Gates, 1969; Giorcelli, 1982; King & Quigley, 1985; Payne, 1982), with idiomatic expressions causing particular difficulty for hearing-impaired children above the 3rd grade (Conley, 1976; King & Quigley, 1985).

Help for students with hearing impairments like Maria is under investigation in Project LITERACY-HI, a three year federally funded study of the benefits of electronically-enhanced text for mainstreamed students with hearing impairments. The project is a collaboration between the Center for Electronic Studying at the University of Oregon and the Cascade Regional Program for the Hearing Impaired in Lane County, Oregon. The central effort of the project is to create electronic versions of content area textbooks that contain, in addition to the original text, multimedia resources that directly support a reader's comprehension. In the long term we would expect that students like Maria will take these electronic textbooks, loaded onto laptop computers, into their general education classes and use them in addition to and/or instead of the paper-based textbooks used by their classmates.[3]

The idea that computer technology can be used to enhance or support the reading skills of students with hearing impairments is not new. As early as 1980, educators saw the potential for using the computer to assist hearing-impaired students in reading content-area text materials. Arcanin and Zawolkow (1980), from the California School for the Deaf, voiced the belief that computer software should be used locally by teachers of hearing-impaired individuals to develop stand-alone lessons similar to textbooks. They advocated a lending library of lessons comprised of teacher-generated text in combination with pictures, labels and graphics to assist other teachers of deaf children. More recently, MacGregor and Thomas (1988) explored the use of a computer-mediated text system which provided hearing-impaired readers with access to an electronic dictionary and motivational learning activities to promote the application of vocabulary knowledge. Results showed that the more students accessed the electronic dictionary, the greater their vocabulary knowledge on post-treatment measures.

The advent of videodisk technology has resulted in several explorations using sign language in combination with English text to enhance students' reading skills (Hanson & Padden, 1990; Prinz, 1991). For example, Hanson and Padden (1990; 1992) developed and researched a multimedia program for bilingual language instruction called *HandsOn*. The combination of text and video enables simultaneous display of American Sign Language and English text, thus allowing hearing-impaired students to access ASL translations of English stories, to see correspondences between printed English and signed ASL, and to practice writing English sentences and paraphrasing ASL stories into English words. This method allows deaf children's competence in ASL to improve their reading and writing skills in English (Hanson & Padden, 1990).

Until the introduction of computers and other forms of advanced technology it was difficult to insert supportive information such as ASL translations into written material in ways that did not interfere with reading the text. Electronic text, however, enables signed translations, as well as definitions, pictures, pronunciations etc. to be hidden from view until called for by the reader. Fluency is therefore not interrupted unless the reader senses a lack of comprehension and a need for one or more of the supportive text enhancements. Emerging research on the use of electronic text enhancements to improve reading comprehension suggests this may be an ideal way to support students who have difficulty understanding, for whatever reason, the materials they are expected to read in school (e.g., Anderson-Inman, Horney, Chen & Lewin, 1994; MacGregor & Thomas, 1988; Reinking & Schreiner, 1985; Wise & Olson, 1994).

Project LITERACY-HI is a three year research effort to explore the ways in which and the extent to which electronically enhanced text can be useful to students with hearing impairments. Specifically, the goals of the project are to (a) identify the types of electronic text enhancements desired by students with hearing impairments, (b) explore the factors associated with appropriate and effective text enhancements for this population, (c) investigate the effects of reading electronically enhanced materials on students' literacy skills and academic achievement, and (d) examine whether this type of assistive technology for hearing-impaired students can be realistically implemented in general education classes long-term.

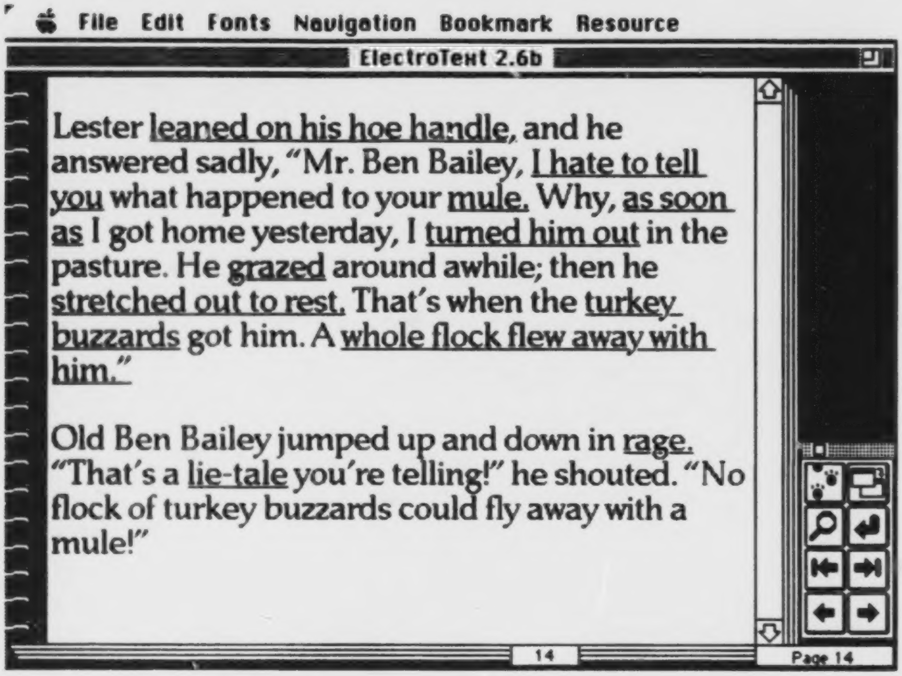
The following sections will provide a description of the electronic documents under development for Project LITERACY-HI, sample data from our initial pilot study, and speculations about future challenges.

ElectroText Authoring System

The electronic documents developed and studied in Project LITERACY-HI are created using a *HyperCard* (Apple Computer Inc., 1987) based authoring interface called the *ElectroText Authoring System*. Figure 2 shows a page from an *ElectroText* document.

This page comes from a test-bed document based on the short story, *Old Ben Bailey Meets His Match* (Justus, 1976).The text of *Old Ben Bailey* is divided into 19 such pages, including a title page (page 1) and a page of comprehension questions (page 19). The menu bar at the top provides standard File, Editing, and Font operations, along with *ElectroText* features for navigating from page to page (duplicated on the Navigation Palette at the lower right), marking pages for future reference and gaining access to the different supporting resources.

The words underlined in the text are known as "keys." When a reader clicks a key, a "Resource Window" appears displaying icons representing the different resources (text enhancements) available for that key. For *Old Ben Bailey* there are six types of resources: Sounds, ASL Translations, Pictures, Animations, Definitions, and Explanations. Clicking an icon in the Resource Window opens another window with the specified resource. In



Lester leaned on his hoe handle, and he answered sadly, "Mr. Ben Bailey, I hate to tell you what happened to your mule. Why, as soon as I got home yesterday, I turned him out in the pasture. He grazed around awhile; then he stretched out to rest. That's when the turkey buzzards got him. A whole flock flew away with him."

Old Ben Bailey jumped up and down in rage. "That's a lie-tale you're telling!" he shouted. "No flock of turkey buzzards could fly away with a mule!"

Figure 2. Page 14 from *Old Ben Bailey*.

Figure 3, three resource windows and the associated resources have been opened. For the key "I hate to tell you," there are two resources available, an explanation and a translation in ASL. For "mule," there is a pronunciation (sound), a picture, and a definition. And for "whole flock flew away with him," there is a pronunciation, an explanation and an animation.[4] Of the 1487 words in *Old Ben Bailey*, 151 words and phrases have been identified as keys,[5] and those keys are supported with a total of 380 resources.[6]

Authoring an *ElectroText* document involves a number of interrelated tasks. Specifically, the production team must identify the words and phrases readers may have difficulty comprehending; decide what types of support resources would enhance comprehension of each word or phrase; and then write, draw, find, manipulate, and/or produce these resources. For *Old Ben Bailey* this took approximately 200 hours.

Part of our research is to determine a set of rules guiding *ElectroText* authors as they identify keys and produce the needed resources. For example, we decided that:

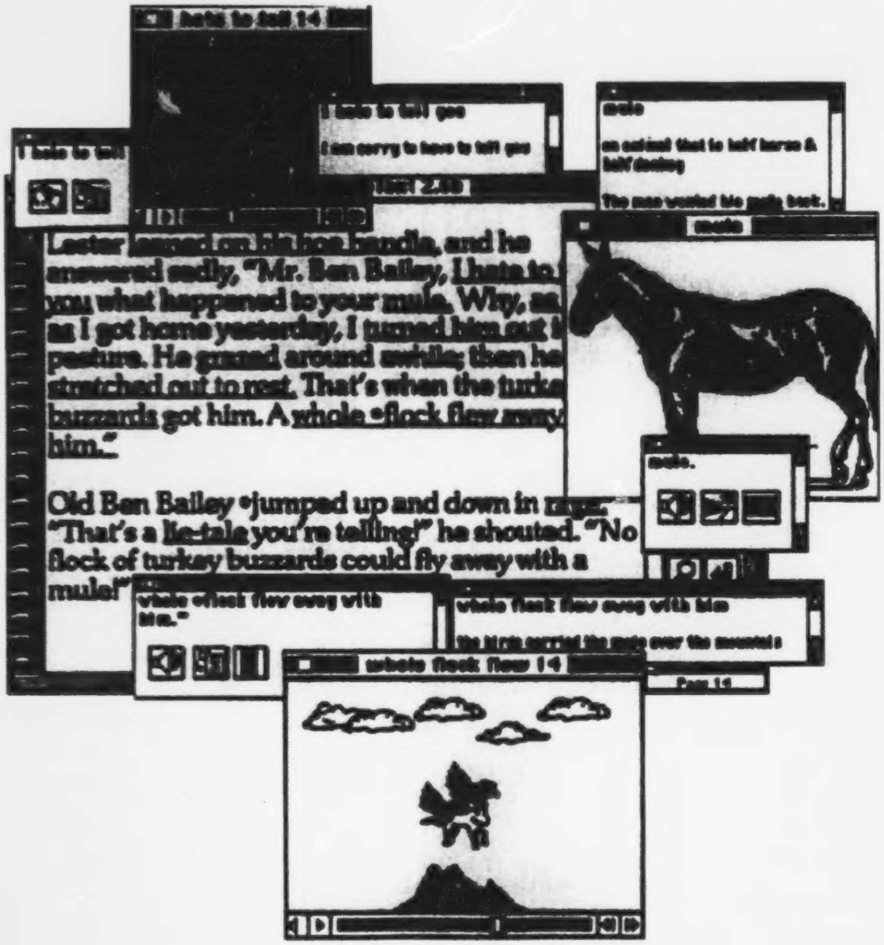
- Every key should be supported by both a pronunciation and a text-based resource (either a definition or an explanation).
- Definitions are used for individual words and are supplemented with a sentence relating to the context.
- Explanations support longer chunks of text like phrases and sentences.
- Both explanations and definitions are written to fit back into the original sentence so as to disrupt the reading as little as possible.
- Pictures are usually used with nouns and animations with verbs.

We expect the initial set of rules for selecting keys and producing resources will evolve substantially as we gain more experience with hearing-impaired readers and we see this as a major research focus.

Pilot Study

In our first pilot study, six students with hearing-impairments read our electronic version of *Old Ben Bailey*, among them Maria. Our intent in this study was to test the operation of *ElectroText* documents in the hands of students, to gain some experience in working with students with hearing impairments, and to evaluate how well our data collection techniques worked.

Each of the six students worked with *ElectroText* documents for four to six sessions, each lasting about an hour. In the first two sessions, students worked with a simplified document containing no resources. The time was used to train students to operate a laptop computer and to navigate among the pages of an *ElectroText* document. Next, a session or two was used to introduce the idea of electronic resources and how they might be helpful. As students gained proficiency in operating *ElectroText*, they were asked to read the entire story for the purpose of being able to



Lester [illegible] and he
answered sadly, "Mr. Ben Bailey, I hate to
you what happened to your mule. Why, as
as I got home yesterday, I turned him out
pasture. He grazed around awhile; then he
stretched out to rest. That's when the turke
buzzards got him. A whole •flock flew away
him."

Old Ben Bailey •jumped up and down in rage.
"That's a lie-tale you're telling!" he shouted. "No
flock of turkey buzzards could fly away with a
mule!"

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Figure 3. Examples of resources.

Event Number	Event Time	Page	Time on Page	Action Taken	Object
276	11:42:30	13	74	Go next page	
277	11:42:59	13		Open resource	crooked finger
278	11:43:11	13		play movie	crooked finger
279	11:43:26	13			crooked finger
280	11:43:37	13		Close resource	crooked finger
281	11:43:44	14	191	Go next page	
282	11:43:59	14		Open resource	leaned on hoe
283	11:44:19	14		Play sound	leaned on hoe
284	11:44:39	14		Open explanation	leaned on hoe

Figure 4. Monitor fragment.

explain the meaning of the story's title *Old Ben Bailey Meets His Match.*[7] After finishing, the students were also given a short vocabulary and comprehension test.

We collected data from three sources as students read. We videotaped each session, ran a screen capture program called *CameraMan* (Vision Software, 1992) to make a digital movie of all screen activity, and used an electronic event monitor to produce a transcript of all reader interactions with the program (e.g. moving from one page to another or opening a resource). Figure 4 shows a fragment of a monitor transcript taken from Maria's third session with *Old Ben Bailey*. Each line in Figure 4 represents one event and is identified by the number shown in the first column (the complete transcript has 313 events). The second column gives the time of day that the event took place and the third column lists the number of the page that appeared on screen. The fourth column shows the amount of time spent on each page visit (the total for the entire document was 6411 seconds or 106 minutes). The fifth column describes the action taking place, and if there was as object of that action (e.g., opening a particular resource window)m the object is indicated in the last column.

From these three data streams we can construct a detailed, moment by moment description of what readers do as they read *ElectroText* documents. From this we can make inferences about the operation of the program, how readers construct their understanding of what they read, and what affect the various text enhancements may have had on the process.

Maria Reads *Old Ben Bailey*

Maria worked with *ElectroText* documents in six sessions spread over a period of a month in the spring of 1994. The first three sessions were spent with a navigation only document learning about the computer and the *ElectroText* procedures for interacting with the text. The last three sessions were spent reading *Old Ben Bailey*. An overview of Maria's work with *Old Ben Bailey* is shown in Figure 5. Graphics such as this are called "event charts" and are derived from the *ElectroText* monitor transcript. Each bar on the graph depicts one event from the transcript. The length of the bar represents the type of event. When read from left to right, the bars show the sequence of reading events, but do not show their elapsed time. Upward bars show the order in which pages of text are visited, and the downward bars show the use of resources.

Maria's event chart is divided into three sections, reflecting her three sessions with *Old Ben Bailey*, and has been annotated to point out some important events. Most of the first session was spent introducing Maria to the different types of resources available to support her reading, using keys from the Title/Introduction page. Because this training was under our control, not Maria's, these events have been edited out of the chart. Once she seemed to understand how to access available resources, Maria read the first two pages of the actual story, getting help and advice as she read. After that went well, Maria was asked to continue reading and was told she would be asked about the meaning of the title when she had finished. It is at this point that Maria's event chart begins.

As the chart shows, Maria moved steadily from page to page, reading intently,[8] but making no effort to access any resources. After a few pages, Maria abruptly turned and indicated she was ready to explain the title, and so was presumably done with this assignment. She stated "I think that Lester that is matching Old Ben ... Old Ben has Funny ... Lester's worrying about Funny ... and the match... "We told Maria that no, that wasn't quite it, and that she was welcome to finish the whole story

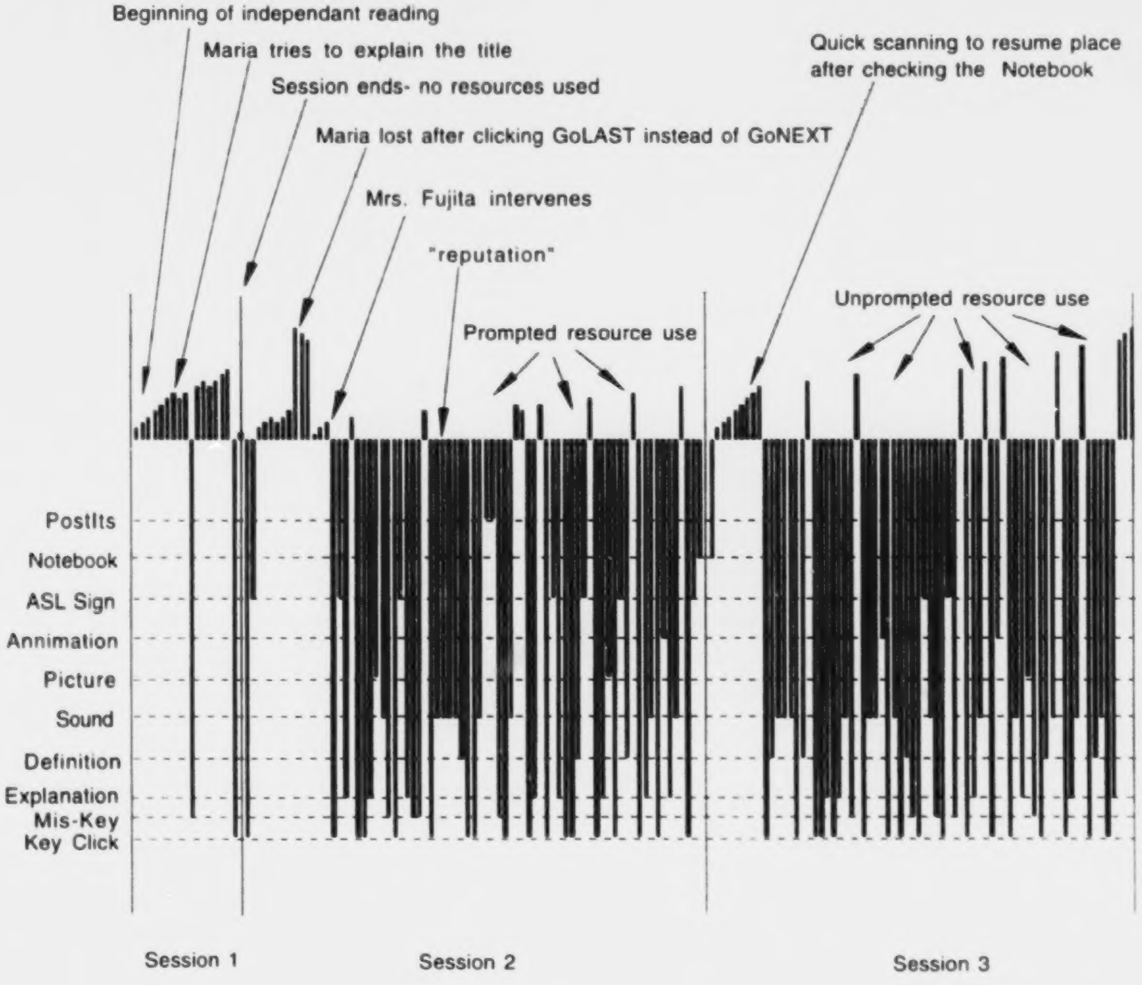

Figure 5. Annotated event chart for Maria.

before trying again. With that rejection, Maria slouched back in her desk and continued reading until the end of the period (See Figure 6). By the end of the session, she had only clicked on only two words in the story, the first a miskey (clicking on a word which isn't a key), and the second by accident as she was quitting the program.

In Session 2 Maria started reading from the beginning of the story, even though she had reached page 12 the day before. She was plodding along, again without using any of the resources, until Mrs. Fujita (Maria's teacher for the hearing impaired) intervened (see Figure 7). Mrs. Fujita hadn't been present during the first session, and when she saw how Maria was working, she began prompting her with questions and pointing out places to access resources. This continued throughout Session 2. Interestingly, during this session Maria began to make regular use of the pronunciations provided for every key, accessing some of them multiple times. We had been unsure of the value of sound in documents intended for hearing-impaired readers, but its importance became clear watching Maria use that resource to add new words to her speaking vocabulary (see Figure 8).

During the third and last session Maria was left to make her own choices about which keys and resources to access. As can be seen from the event chart (Figure 5), Maria continued to make frequent use of the different types of resources available. She began reading the document on page 9, finding the page where she had stopped in the previous session by looking at the Notebook message she'd left for herself (at our suggestion). Her new level of engagement with the text (as seen in Figure 9) contrasts sharply with that seen in the Session 1 (Figure 6).

After finishing the story Maria was able to provide a better explanation of the title, one which now conveyed the gist of its meaning: "He was being so rude and how he match Lester is because he told old Ben Bailey the same thing." On the short vocabulary/comprehension test Maria correctly answered all

Figure 6. Maria reading in Session 1.

Figure 7. Mrs. Fujita intervenes.

of the comprehension questions and missed only one of the vocabulary questions. She chose "talk in an angry way" as the definition for "bemean" rather than "say bad things about," the definition given for the key "bemeaned" on page 17 of the story. Maria had not accessed this resource.

Table 1 shows a tabulation of the keys and resources that Maria did access. The table is organized by page visits- omitting those visits where no resources were used, and shows the sequence of the resources accessed for each key Maria clicked. The session number, and the number of seconds each visit encompassed are listed beside the page number in the left column. The next column identifies the word or phrase which had been marked as a key in the story. The numbers for each resource type indicate the sequence in which the resources for each key were accessed. For example, during her first visit to page 5 during Session 2 (lasting 359 seconds) Maria first clicked on the word "reputation," listened to its pronunciation four times and then read its definition. She then clicked on the phrase "Old Ben had a bad reputation," and only listened to its pronunciation. Maria next opened and closed the resource window for "corncribs" without using any of the resources. And finally, Maria listened to the pronunciation for "right in broad daylight." Later in Session 2, Maria visited page 5 again and looked at the explanation for this same key. Shaded cells indicate unavailable resources.

Figure 8. Maria listening for "reputation."

Figure 9. Maria reading in Session 3.

From these and the other data collected in our pilot study we were able to make several observations:

- It was relatively easy for students to learn basic computer and *ElectroText* operations, although improvements in speed and sound quality were warranted. Also, a mouse, rather than the Macintosh PowerBook track ball was needed for interacting with the document.

- No extraordinary communication measures were needed in order to work with our sample of students with hearing impairments. However, it was useful to have a teacher such as Mrs. Fujita working with us, especially during introductory sessions.
- Students with hearing impairments do not automatically see the value in the electronic resources provided to enhance their comprehension. Guided reading, under the direction of an educator who knows the student's reading and comprehension skills can be tremendously helpful in focusing the reader's attention on potentially useful resources.
- Our data collection techniques produce a rich assortment of data more than adequate for the task of describing how hearing-impaired readers interact with *ElectroText* documents. We must, however, become more ambitious and creative in our measures of reading comprehension.
- Our readers need better instruction on how to use text based resources. In particular, they need to know how to integrate a definition or explanation back into the original context.
- Some readers are drawn to the multimedia resources and tend to use them more often and prior to using text based resources.

Future Plans

As Project LITERACY-HI enters its second year we expect to broaden the range of our activities. While the *ElectroText Authoring System* itself is now substantially complete, we expect to continue making improvements in two areas- its speed and in the types resources provided to readers. The speed of the program during the pilot study was clearly inadequate, with several seconds being required to move from one page to another or to access a resource. Slowness is always bothersome, but in this environment it led to other problems. Maria, for example, was particularly prone to making multiple clicks in a effort to hurry the program along. These were interpreted by *ElectroText* as clicks on words which were not keys (labeled "mis-keys" in Figure 5) and Maria was constantly frustrated by messages indicating "No resources available for that word."

We have two new types of resources in mind for future development. The most important is called "Graphic Overviews." This resource will provide a flexible environment for displaying concept maps, timelines, flowcharts and other types of graphics designed to give the reader a conceptual overview. We also plan to embed comprehension questions within the text and anticipate these will help students monitor their own understanding of what they are reading.

We have also begun the process of assessing the appropriateness and effectiveness of each resource type. By "appropriateness" we mean the correspondence between our intended meaning for a resource and the reader's interpretation of it. We must determine, for example, whether as she strained to hear the pronunciation of "reputation" (see Figure 8), Maria was she able to recover enough of the sound for it to be useful. Perhaps the sound needs to be louder, or pitched differently, or read slower. Then, assuming our presentation of the sound resource for "reputation" is appropriate, we must assess whether listening to such pronunciations is an effective technique for improving Maria's comprehension of individual words and of the text as a whole. The results of these evaluations will be incorporated into the rules used to select keys and the rules to determine and produce resources.

Table 1. Sequence of Resources Accessed by Page Visit

Page/Session (Sec.)	Description	Def.	Exp.	Sign	Pict.	Ann.	Snd.
1/2 (158)	OLD BEN ... HIS MATCH	■		1	■	■	
2/1 (286)	hound dog		■	■	1	■	■
3/2 (169)	hadn't the ... to scold	■	2	1	■	■	
4/2 (220)	get a whipping	■	1	■	2	■	3
	likely		■	■	■	■	
	fine notion	■	2	1	■	■	
5/2 (359)	reputation	5	■	■	■	■	1-4
	Old Ben ... bad reputation	■			■	■	1
	corncribs		■	■		■	
	right in broad daylight.	■			■	■	1
5/2 (69)	right in broad daylight	■	1		■	■	
6/2 (250)	Mighty much ... to you	■	2	1	■	■	
	kept him after school	■		■	■	■	
	pupil	1	■	2	■	■	
7/2 (139)	leaning on the gate	■	1	■	2	■	
	stammered	2	■	1	■	■	
8/2 (177)	perk him up	■	1	■	■	■	2
	right down ... turkey buzzard	■	2	■	■	1	3
9/2 (189)	He swallowed ... his throat	■		1	■	■	
9/3 (270)	deceive	1	■	■	■	■	2-4
	notion	1	■	■	■	■	
10/3 (145)	stumped toe	■	1	■	■		
	hurts mighty bad	■		■	■	■	
	hurts mighty bad	■	1	■	■	■	2
11/3 (346)	But he ... his head	■		■	■	3	1-2
	manners		■	■	■	■	1
	manners	1	■	■	■	■	
	Mighty much ... the favor	■	■	1	■	■	2
	Mighty much ... the favor	■	■	1	■	■	
12/1 (70)	digging sweet potatoes	■		■		■	
12/3 (99)	as mad ... a hornet.	■	1	■		■	2
13/3 (74)	crooked finger	■		■	■	1	
14/3 (191)	leaned on ... hoe handle	■	2	■	3	■	1
	turkey buzzards	1	■	■		■	2
15/3 (85)	mighty strengthy	■	1	■	■	■	2
16/3 (108)	pappy	1	■	■	■	■	2
	hip-and-hurrah.	■	1	■	■	■	
	Percentage of Resources Accessed:	67%	61%	75%	50%	75%	44%

A last focus for our coming efforts is to devise effective techniques for teaching students to read in these supported text environments in ways that enhance their comprehension and learning. It is not enough to simply provide resources. Readers must also acquire the habits and meta-cognitive skills to use those resources to good effect. As we saw with Maria, students are sometimes perfectly willing to read along without gaining any real comprehension of the text, and without making any effort to understand more. Some readers are unwilling to make such efforts, some have been taught not to make such efforts,[9] and some have not yet learned to distinguish when they are and when they are not comprehending.

Finding ways to encourage resource use without mandating or overemphasizing it is an issue we will be investigating with some vigor. We do not want to have students accessing resources simply because they are there. The intent in providing students with electronically-enhanced text is to assist them in recognizing when they need support in order to comprehend what they are reading and then making sure that support is available. Past experience suggests that over utilization of resources may turn out to be as much of a problem as under utilization of resources. For example, some students become so enamored with specific resources that they spend all their time utilizing that resource and little or no time reading the text. We have seen this problem in previous research using earlier versions of ElectroText with at-risk students (Anderson-Inman & Horney, 1993; Anderson-Inman, Horney, Chen & Lewin, 1994). A subset of our sample made little effort to read the documents assigned, concentrating instead on seeking out, and repeatedly listening to every word pronunciation they could find. Having ignored the text and other resources, these "resource junkies" performed poorly on measures of comprehension. Although this has not yet developed as a problem with our hearing-impaired readers, we anticipate that their comprehension will be improved if we can help them to find a balance between under and over utilization of available resources.

By the end of our second year, given these improvements, we expect to be in a position where we can efficiently produce effective *ElectroText* documents, train readers to read them in appropriate fashions, and evaluate the effects of electronically supported text on reading comprehension and academic achievement. We will then be ready to take *ElectroText* into students' general education classrooms and test whether electronic text enhancements in a hypermedia environment are of long-term benefit to readers with hearing impairments.

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End Notes

[1] Project LITERACY-HI: *L*iteracy *I*mprovement via *T*ext *E*nhancements and *R*eading *A*ssistance for *C*hildren and *Y*outh with *H*earing *I*mpairments.

[2] The names of all project participants are pseudonyms.

[3] Note that this strategy of supporting readers within their regular educational context imposes constraints on the electronic documents we create. We can not, for instance, rewrite poorly written textbooks or exploit all the features available in a fully computerized hypermedia reading environment. Advantageous as such things might be, doing them would shift the focus of the project away from supporting readers, towards creating a new curriculum.

[4] The text of page 14 shown in Figure 3 also contains two bullets. These are markers for "Postits," which can be inserted at any point in the text. Clicking on the bullet opens a

window where notes or messages can be written. The system also provides readings with a Notebook (not shown) to be used for more general notes.

[5] Note that while in *Old Ben Bailey* only individual words and short phrases were used as keys, we can also attach resources to larger units of text, e.g. sentences, paragraphs and whole pages. We also expect to expand the types of resources available.

[6] When reading an *ElectroText* document such as *Old Ben Bailey*, it is unlikely that a student would have the large number of windows depicted in Figure 3 on the screen at one time. Instead, *ElectroText* pages in this document were designed so that a reader is aware of the words or phrases for which resources have been provided and can access those resources when comprehension is uncertain. However, readers do have the option of opening several resources at once and can arrange them on the screen as needed.

[7] A short synopsis: Lester lives with his father in Tennessee where they raise foxhounds. One day Lester's dog Funny follows him to school, where dogs aren't allowed. Lester decides to leave Funny with Old Ben Bailey, a man of questionable reputation. Racing back after school, Lester stumps his toe and arrives limping at Ben's house where he is told that a turkey buzzard has carried Funny away. Not believing this story, Lester asks to barrow Ben's mule so he won't have to walk home on a bad foot. Lester doesn't return the mule and when Ben arrives demanding it, Lester claims that a whole flock of buzzards have carried the mule away. Ben realizes he has been out done in the telling of wild tales and returns Funny.

[8] All six students read very intently throughout their experience with *ElectroText*. However, we don't attribute this to any compelling interest there may be in the story of Lester's struggle with Old Ben, or in reading an *ElectroText* document, but rather to the fact that there were always three or four adults intently watching this intense reading, not to mention a video camera.

[9] For example, taking the time to look a word up in the dictionary is so disruptive to the reading process that some teachers discourage this practice.

Establishing Classroom Routines

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TEACHERS ARE FACED WITH THE TASK OF MANAGING MULTIPLE ACTIVITIES ON ANY GIVEN DAY or any given period (Cangelosi, 1988). In addition student needs arise at regular and often unpredictable rates. This combination of multiple classroom activities and the demands of frequent student needs can overwhelm a teacher and lead to disorder in the classroom (Evertson, & Harris, 1993; Walker, Colvin & Ramsey, 1994). One strategy for alleviating these problems is to systematically establish classroom routines (Cummings, 1989; Paine, Jones & Jones, 1986; Radicchi, Rosellini, Deutchman, & Darch, 1983). Classroom routines refer to those activities that are completed by students with minimum assistance from the teacher. Essentially, the goal is to have the students manage these tasks by themselves. The routines usually consist of a number of sequential behaviors to be managed independently by the students. For example, a teacher may expect the students to turn in completed assignments and products at a specific place in the room, return to their desks, and begin another activity, without prompting from the teacher. The basic assumption in this article is that classroom routines need to be systematically taught. We describe four aspects of classroom routines: (a) purposes and benefits, (b)common classroom routines, (c) a basic strategy for establishing the routines, and (d) using routines to solve problems.

This article is an excerpt from a book by Geoff Colvin and Mike Lazar to be published by Sopris West in Summer, 1995.

Purposes and Benefits of Classroom Routines

Help to Develop Self-Management Skills
Provide Opportunities to Practice Skills
Serve Test or Diagnostic Purposes
Free the Teacher to Attend to Other Tasks and Responsibilities
Manage "Administrivia" Efficiently
Minimize Interactions
Help to Create a Shared Ownership between the Teacher and Students
Provide Structured Opportunities for Socialization
Provide structure for addressing and solving problem areas

Common Classroom Routines

Teachers typically develop their own list of classroom routines with appropriate levels of detail to suit their purposes and needs. It is very important to clearly specify the student behaviors for each routine. An example of student behaviors is presented for the routine, "Starting the Day," followed by a list of common classroom routines.

Classroom Routine: Starting the Day

Allow a set time for initial procedures such as five minutes to complete this routine. Teach these procedures during the first week of class. Be consistent in implementing the routine and review it periodically.

Student Behaviors

Put their hats, coats, bags, and lunch boxes in designated areas.
Turn in homework or products to appropriate places.
Put instructional materials in their desk.
Sharpen pencils and gather necessary materials for class.
Be in their seat ready to start class by the time five minutes is up.

Other common classroom routines include:

- Entering the classroom
- Working independently
- Obtaining supplies
- Using the drinking fountain
- Using the restrooms
- Sending work home
- Moving around the classroom
- Establishing class helpers
- Speaking in class
- Organizing assignments
- Conducting tests and quizzes
- Meeting individual needs
- Using filler activities
- Completing transitions

Basic Strategy for Establishing Classroom Routines

We suggest that the teacher view classroom routines as a set of *skills* that need to be taught to the students. That is, the teacher should apply the same teaching principles and strategies employed to establish academic, sport, and social skills to teaching classroom routines. Typically, five steps are used to teach a skill: (a) Explain, (b) Specify student behaviors, (c) Practice, (d) Monitor, and (e) Follow-up. The five steps are briefly described followed by an example.

Step One: Explain

In this step, the teacher provides reasons and purposes for the particular routine. Student input is solicited and encouraged.

Step Two: Specify Student Behaviors

In this step, the teacher needs to be quite specific about the behaviors that are required of the students. These behaviors should be *discrete, sequential* and *observable.*

Step Three: Practice

Teachers typically use practice to develop fluency or automaticity in skill development. It is important that *all students* have an opportunity to demonstrate and practice the routine. The students should not be expected to exhibit the routine independently in the real situation until they have demonstrated proficiency in the practice sessions.

Step Four: Monitor

The teacher needs to *actively supervise* student performance of the routine, especially in the early stages. In this way the teacher can catch problems early, provide praise or reinforcement to students who follow the routine correctly, and provide prompts, correction, and encouragement to students who may be making errors.

Step Five: Follow-Up

When the routine is completed, the teacher should provide feedback to the students on their performance. Identify strong and weak points, acknowledge and reinforce demonstrations of good performance and deliver consequences as appropriate for problem behavior. After initial implementation, the routine should be reviewed from time to time.

Note

More structure is usually needed for younger students, larger groups of students, and classes comprised of students with problem behaviors.

Illustration of a Classroom Routine Lining-Up to Exit the Classroom

Step One: Explain

Use a discussion format to describe the reasons for lining up when they leave the room. Some of the reasons are to be orderly, punctual, quiet, focused, respectful, and to be able to hear any last minute directions. Invite the students to contribute. Discuss ways in which they line up, such as who goes first and where the line should form. At the end of the discussion, ask questions on why we need to line up, where, and how the line is to form.

Step Two: Specify Student Behaviors

Describe in order the specific behaviors you want the students to follow. The teacher signals at the end of the lesson that it is time for P.E. The students are expected to:

1. Put their materials away, clear their desk and push in their chairs.
2. Move quietly, without rushing, to the doorway (in designated rows or when they have put their materials away).
3. Line up facing the door, keeping one space between each person.
4. Keep hands and feet to self
5. Listen to the teacher and wait for the signal to depart.

Step Three: Practice

1. Ask the students to specify the behaviors in the routine for lining up.
2. Teacher models the lining up routine.
3. Teacher calls on two or three students to model the routine and asks the rest of the class to watch carefully.
4. Call on other small groups to model the routine.
5. Call on the whole class to model the routine.
6. Repeat until all students demonstrate the routine correctly.
7. Acknowledge the students who cooperate with the practice session and follow the session with a brief reinforcing activity (to acknowledge cooperation).

Step Four: Monitor

The students have been given the signal to line up for recess. The teacher disengages from other activities to directly observe the students. The teacher praises students who complete the routine correctly and independently, and provides reminders or prompts to students who stall or engage in other behaviors. Monitoring should occur daily until no prompts are needed to complete the routine. Monitoring could then be scheduled two or three times a week and then periodically.

Step Five: Follow-Up

The teacher responds to the students' performance once they have all lined-up at the door using specific praise and feedback. For example, "Great, Michael and Sarah have left a space between them." or "Joe, Mary and

Charlie, remember to face the door please." With continued good performance the teachers may reward the class. If problems persist more practice may be necessary for the class.

Conclusion

Providing classroom instruction has become a very complex task for teachers. It is possible for teachers to become overwhelmed and discouraged with the profession and students opportunities for learning may be lessened. One strategy for addressing these problems is to utilize classroom routines. Essentially teachers identify a set of functional classroom routines and then provide systematic instruction to teach the routines. In this way a more cooperative and orderly classroom learning environment can be established.

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Social Skills Training for Youth with Behavior Disorders

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IT IS WELL DOCUMENTED THAT YOUTH WITH BEHAVIOR DISORDERS (BD) OFTEN DO NOT EXHIBIT appropriate social behavior. Moreover, youth with BD are defined by leading experts as children who chronically respond to their environment in socially unacceptable ways (Kauffman, 1977). Not only does the lack of appropriate social responses define BD, it also leads to an endless array of problems. For example, lack of appropriate social responses in youth has been associated with juvenile delinquency (Pilivan & Briar, 1964; Roff, 1961; Sarason, 1968; Ullmann, 1957), low social status among peers that leads to problems in personal adjustment in adult life (Parker & Asher, 1987), and adult maladjustment and psychiatric problems (Michelson & Mannarino, 1986). Given these bleak outcomes for children whose social skills appear to be lacking, a large number of studies have begun to emerge in research journals that have focused on social skills training. This literature base has become so large that synthesis of the research has become necessary.

Again, with the large number of studies that focus on social skills interventions for children with BD (ERIC listed 82 studies using the descriptors "behavior disorders and social skills") it would appear warranted to conduct a quantitative synthesis of the literature on this topic. Several recent reviews have focus on the topic of teaching social skills to youth with behavior problems (Cunliffe, 1992; Singh, Deitz, Epstein, & Singh, 1991; Zaragoza, Vaughn, & MacIntosh, 1991), however, the descriptive analyses that have been published have not focused exclusively on single-subject research designs. Therefore, the purpose of this study was to conduct a descriptive analysis of the research literature on teaching social skills to youth with BD that used a single-subject research design.

The analysis addressed the following questions: (a) What were the independent variables used in the studies? (b) How were the independent variables distributed across studies? (c) What were the dependent variables measured in the studies? (d) What were the dependent measure used in the studies? (e) Where did the studies take place? (e) If, any what type of generalization program was employed? and (f) What were the author's conclusions and the reviewers response to those conclusions?

Results

A search for single-subject studies of youth with BD yielded 22 articles that represented 38 separate studies (see appendix A). The results of the analysis are presented below.

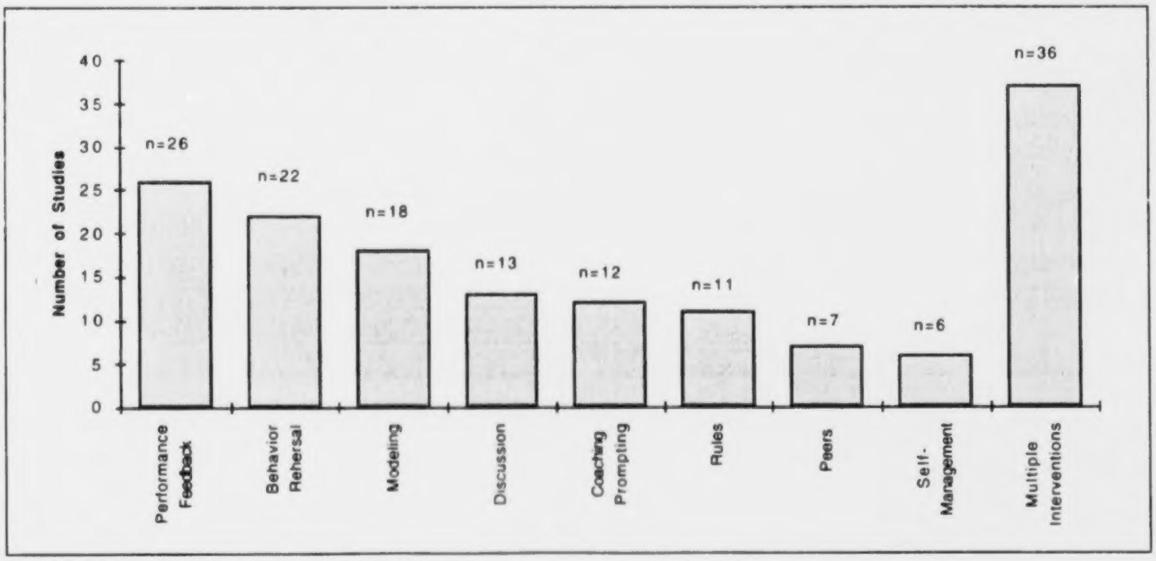
Independent Variables

Analysis of the independent variables are presented in Figure 1. Figure 1 indicates that most of the studies analyzed in this review used multiple interventions (2 or more independent variables). Over 20% of the studies (8) used 5 or more independent variables in their interventions. And, as Figure 1 indicates, multiple interventions were used in 36 of the 38 studies in this review.

Figure 1 also indicates how often each independent variable listed was used in the studies: Performance feedback was used in 68% of the studies (n=26); behavior rehearsal was used in 58% of the studies (n=22); modeling was used in 47% of the studies; discussion was used in 34% of the studies; coaching/prompting was used in 31% of the studies; rules were used in 29% of the studies; peers were involved in the training in 18% of the studies; and self-management was used in 16% of the studies.

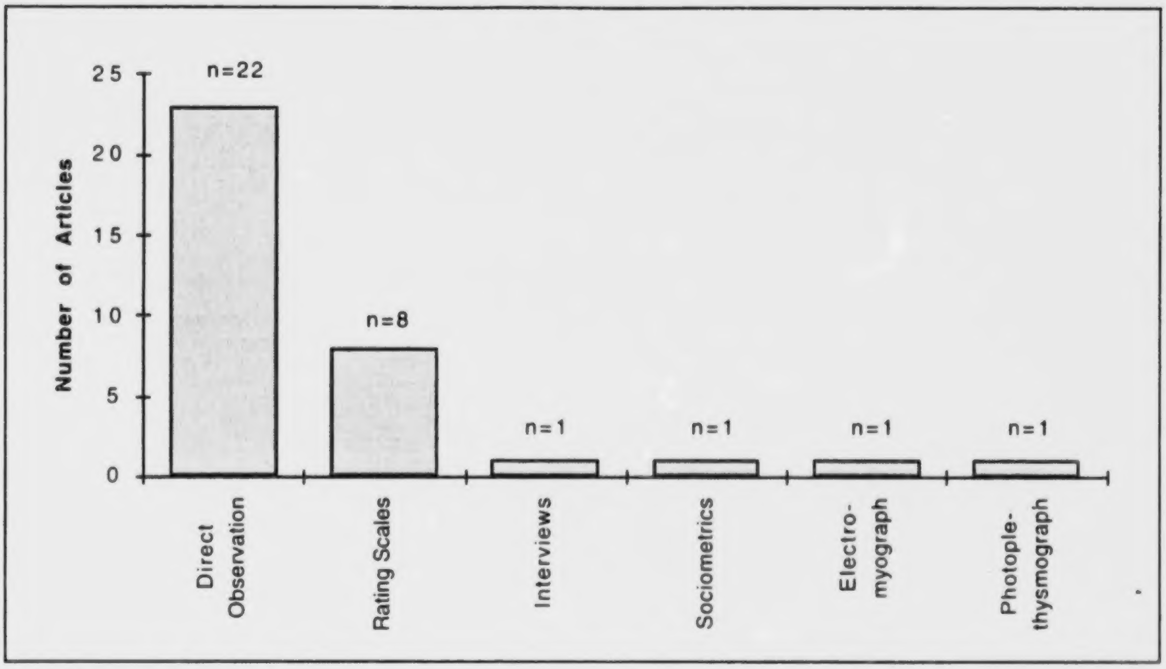
Dependent Variables

Analysis of the dependent variables indicate that a large number of discrete behaviors are defined as social skills. Most of the studies examined different behaviors. Only a few behaviors were examined in more than one study. For example, eye contact was a dependent variable in 3 of the 22 studies (Bornstein, Bellack, & Hersen, 1980; Combs, & Lahey,



N=38; categories not exclusive.

Figure 1. Independent variables.



N=22; categories not exclusive.

Figure 2. Dependent measures.

1981; Fanco, Christoff, Crimmins, Kelly, 1983), and social interaction was a dependent variable in 3 of the 22 studies (Franca, Kerr, Rietz, & Lambert, 1990; Nietupski, Stainback, Gleiessner, Stainback, & Hamre-Nietupski, 1983; Wahler, & Fox, 1980). However, dependent variable found in more than one study was the exception rather than the rule.

Dependent Measures

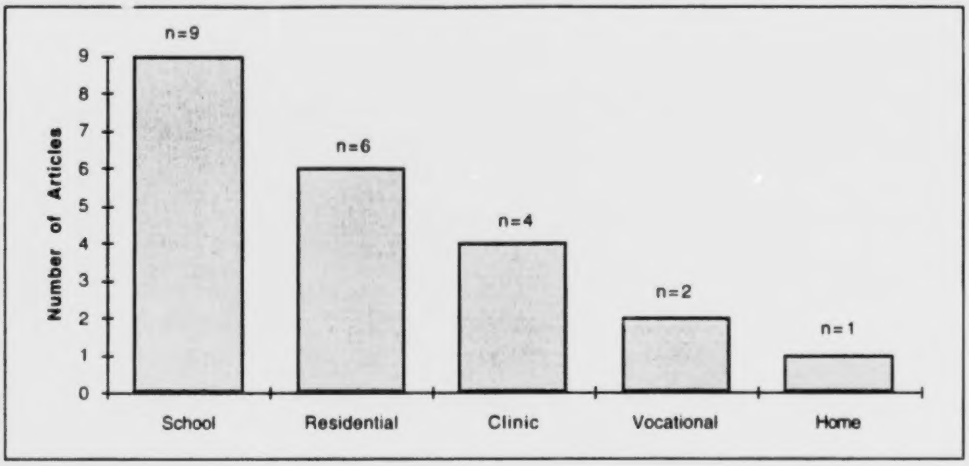
Dependent measures are presented in Figure 2. 100% of the studies used direct observation to measure their dependent variables (n=22). Rating scales were used in 36% of the studies (n=8), followed by interviews (n=1), sociometrics (n=1), electromyograph (n=1), and photoplethysmograph (n=1).

Settings

Figure 3 presents an analysis of the settings. 41% of the studies were conducted in a school setting (n=9); 27% of the studies were conducted in a residential setting (n=6); 18% of the studies were conducted in a clinical setting (n=4); 9% were conducted in a vocational setting (n=2); and 4% of the studies were conducted in a home setting (n=1).

Generalization

Analysis of the generalization programming is presented in Figure 4 (the definitions of the generalization strategies are presented in White et al, 1988). These results indicate that 60% of the studies (n=23) used either a train and hope or no strategy; 29% of the studies (n=11) used a train in the natural setting strategy; 13% of the studies (n=5) used a train to generalize strategy; 8% of the studies (n=3) used an introduce to natural maintaining contingencies strategy; 5% of the studies (n=2) used either homework or indiscriminate contingencies strategies; and 3% of the studies (n=1) used either a sufficient exemplars, mediate generalization, sequential modification, or program common stimulus strategies.



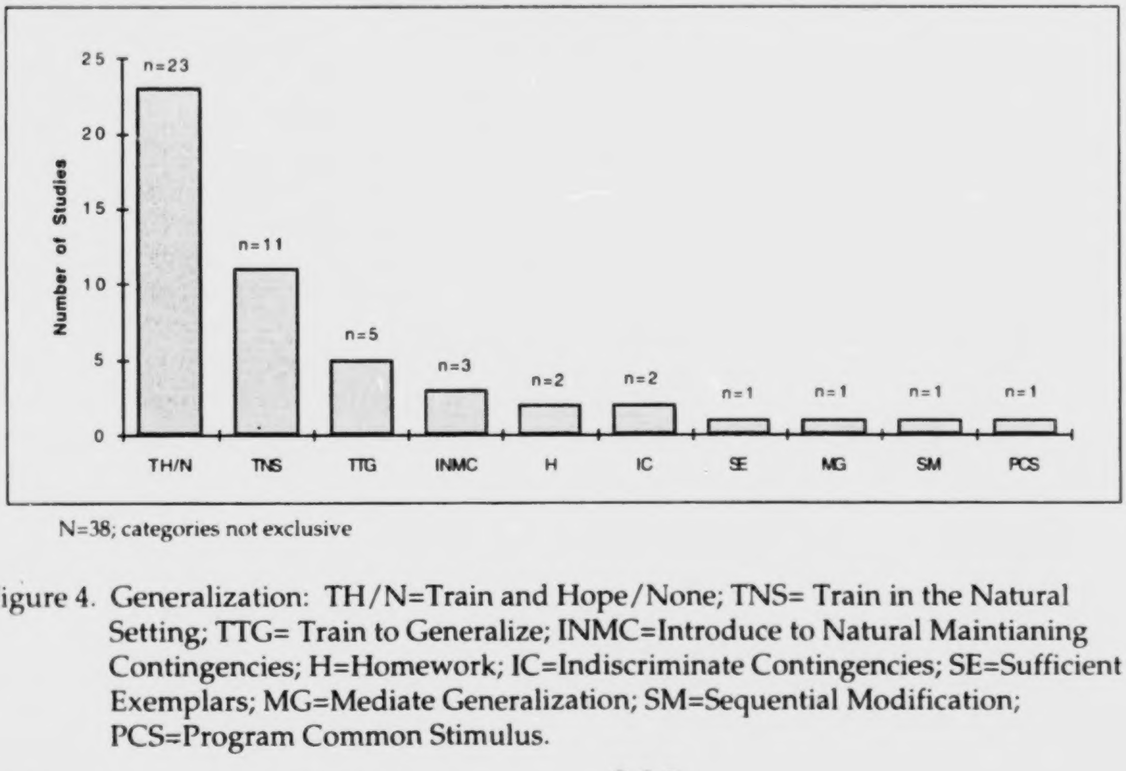
N=22

Figure 3. Settings.

Author's and Reviewer's Conclusions

The author's and review's conclusions are presented in Figure 5. 29% (n=11) of the authors concluded that their subjects were successful in acquiring the skills they had trained; and 10% (n=4) of the authors concluded that their subjects were partially successful in acquiring the skills they had trained. 29% (n=11) of the reviewers agreed with the authors conclusion on acquisition; and 10% (n=4) partially agreed with the authors conclusions on acquisition.

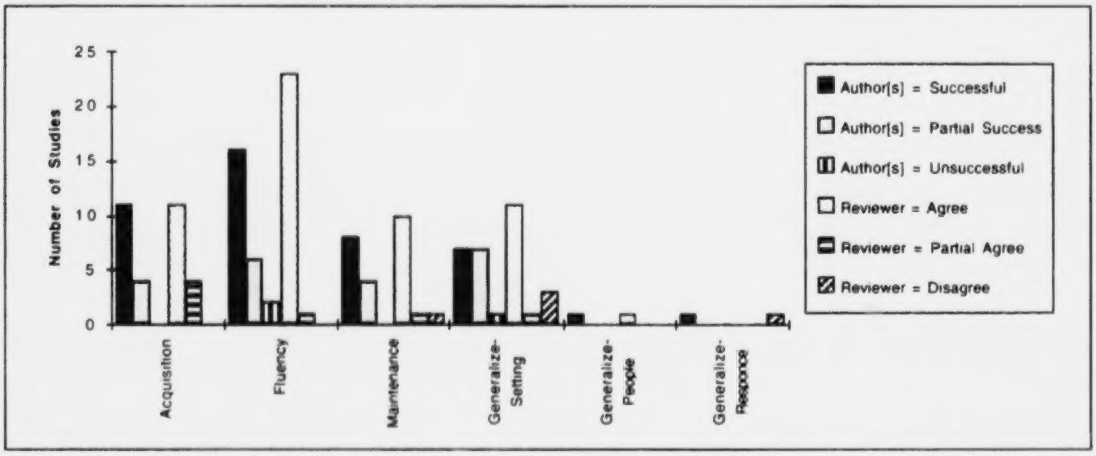
Forty-two pecent (n=16) of the authors concluded that their subjects were successful in



N=38; categories not exclusive

Figure 4. Generalization: TH/N=Train and Hope/None; TNS= Train in the Natural Setting; TTG= Train to Generalize; INMC=Introduce to Natural Maintianing Contingencies; H=Homework; IC=Indiscriminate Contingencies; SE=Sufficient Exemplars; MG=Mediate Generalization; SM=Sequential Modification; PCS=Program Common Stimulus.

increasing the fluency of the skills they had trained; 16% (n=6) of the authors concluded that their subjects were partially successful in increasing the fluency of the skills they had trained; and 5% (n=2) authors concluded that their subjects were unsuccessful in increasing the fluency of the skills they had trained. 60% (n=23) of the reviewers agreed with the authors conclusions on fluency; and 3% (n=1) of the reviewers partially agreed with the authors conclusions on fluency.



N=38; categories not exclusive

Figure 5. Author's and Reviewer's Conclusions

Twenty-one percent (n=16) of the authors concluded that their subjects were successful in maintaining the effects of training; and 16% (n=6) of the authors concluded that their subjects were partially successful in maintaining the effects of training. 26% (n=10) of the reviewers agreed with the authors on maintenance; 3% (n=1) of the reviewers partially agreed with the authors on maintenance; and 3% (n=1) of the reviewers disagreed with the authors conclusions on maintenance.

Eighteen percent (n=7) of the authors concluded that their subjects were successful in generalizing the trained behavior across settings; 18% (n=1) of the authors concluded that their subjects were partially successful in generalizing the trained behavior across settings; and 3% of the authors concluded that their subjects were unsuccessful in generalizing the trained behavior across settings. 29% (n=11) of the reviewers agreed with the authors on generalization across settings; 3% of the reviewers partially agreed with the authors on generalization across settings; and 8% (n=3) of the reviewers disagreed with the authors on generalization across settings. 3% (n=1) of the authors concluded that their subjects were successful in generalizing the trained behavior across people; and 3% (n=1) of the reviewers agreed with the authors on generalization across people. 3% of the authors concluded that their subjects were successful in achieving response generalization; and 3% (n=1) of the reviewers disagreed with the authors conclusion that their subjects had achieved response generalization.

Additional Variables

Finally, the following variables were included in the analysis. 86% (n=19) of the articles followed a behavioral perspective; and 14% (n=3) of the articles followed a cognitive/

behavioral perspective. 4% (n=1) of the articles measured procedural reliability that the reviewer scored as moderate; 4% (n=1) of the articles measured procedural reliability that the reviewer scored as strong; and 91% (n=20) did not measure procedural reliability. 14% (n=3) of the articles reported a source of social validity; 9% (n=2) of the articles reported a target of social validity; and 86% (n=19) did not report social validity. 50% (n=11) reported maintenance checks. 86% (n=19) of the subjects/students were in special education classes; 14% (n=3) were in regular education classes; and 4% (n=1) were in mixed classes.

Conclusion

In summary, several findings stand out. Multiple treatments were used in 95% of the studies. Analysis of the dependent variables indicated that a large number of discrete behaviors are defined as social skills. This large number of discrete behaviors defined as social skills suggests that the contruct of social skills is not clearly defined in the literature. All of the studies used direct observation to measure the dependent variables. The largest percent of studies were conducted in a school setting. Although a large percentage of the authors suggested that their subjects had either acquired, or become more fluent, in the bahaviors that were taught, a smaller percent suggested that the behaviors maintained, and an even smaller percent suggested that the behaviors generalized to other settings, people, or responses. Further, even when the authors did conclude that the behaviors had generalized, the reviewers in this study did not always agree.

The results of this study indicate that (a) more studies need to be conducted on the maintenance and generalization of social skills and (b) what constitutes social skills needs to be clarified if we are to move forward with this line of research.

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The Effects of Self-Evaluation, Self-Observation, and Self-Observation Plus Self-Recording on the Occurrence of Disruptive Behaviors in Classroom: Extension Study

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FOR LEARNING TO OCCUR IN A CLASSROOM, STUDENTS MUST BE ABLE TO ATTEND TO THE assigned task. However, students with emotional and behavioral disorders (EBD) spend less time attending to required tasks and more time engaging in problem behaviors. Not only do these students fail to learn but their behaviors also disturb other students in the learning environment. As a result, teachers spend a disproportionate amount of their time managing inappropriate behavior, instead of focusing on academic instruction. Thus, the education of children with EBD has been a critical concern of both regular and special educators (Kauffman, 1989; U.S. Department of Education, 1991).

As Ritter (1989) indicated, the most significant areas of need for EBD students are nonacademic. In national surveys regarding programming and placement options for EBD students, Grosenick and Huntze (1980) found that school officials were most concerned about how to cope with the problem behaviors presented by EBD students. Walker and Rankin (1983) found that teachers' most unacceptable behaviors in their classroom were related to classroom control, general discipline, and compliance with teacher directives. Changing problem behaviors has long been the concern of teachers, administrators, and support staff (e.g., school psychologists, counselors) who have developed an array of intervention strategies to increase the occurrence of appropriate and decrease the occurrence of inappropriate behaviors.

Within the last decade, a number of treatments have been developed to decrease the disruptive behaviors of EBD students. Researchers have investigated the effectiveness of using self-management procedures to promote students' academic and social behaviors

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(Karoly & Kanfer, 1982; Mahoney & Thoresen, 1974). Various self-management procedures have been designed to teach students to manage their own behaviors. Among them, self-evaluation has been shown to be effective in many previous studies (Rhode, Morgan, & Young, 1983; Smith, Young, West, Morgan, & Rhode, 1988; Sweeney, Salva, Cooper, & Talbert-Johnson, 1993). In the self-evaluation procedure, students make their own judgement about their behavior or academic performance based on established criteria. Self-evaluation procedures have been studied, however, they have been incorporated into treatment packages that also include teacher or experimenter managed strategies (e.g., token economy, matching with teacher's evaluation, positive reinforcement).

Self-recording is another self-management strategy that has become an increasingly important and useful procedure for changing inappropriate behaviors because of ease of implementation (Lloyd, Bateman, Landrum, & Hallahan, 1989; Mclaughlin, 1984; Piersel, 1985). Self-recording is defined as the act of observing one's own behavior and the subsequent recording of its frequency. Self-recording has been used successfully with a variety of students and grade levels to increase students' behavior and academic productivity (Lloyd, Bateman, Landrum, & Hallahan, 1989; McLaughlin, 1984; Nelson, Lipinki, & Boykin, 1978; Piersel & Kratochwill, 1979; Studwell & Moxley, 1984; Sugai & Rowe, 1984). However, many previous uses of the self-recording procedure required external contingencies (e.g., token economy or rewards), external agents as observers, and an obtrusive self-recording device (Nelson, Lipinki, & Boykin, 1978; Piersel, 1985).

Another self-management strategy for behavior change is "self-observation" with videotape. "Self-observation" is defined as the process of observing one's self performing appropriate-only behavior (Dowrick, 1983). This definition assumes that occurrence of behavior is affected by the repeated observation of one's self on videotapes in which only desired behaviors are shown. Although self-observation with videotape is a relatively new strategy in school settings, it has been used successfully to improve children's behavior (Davis, 1979; Dowrick & Raeburn, 1977; Esveldt, Dawson, & Forness, 1974; Greelis & Kazaoka, 1979; Kehle, Clark, Jenson, & Wampold, 1986; Kehle, Owen, & Cressy, 1990; McCurdy &Shapiro, 1988; Weisbord, 1976; Woltersdorf ,1992). While the effect of self-observation appears to be immediate and relatively strong with respect to the amount of actual time spent viewing the edited videotapes, the procedure needs proper editing equipment and time and effort for editing each videotape to eliminate inappropriate behaviors. In addition, the immediate effect of self-observation on behavioral occurrences decreases because time elapses between acting in the real situation and viewing the edited tape (Sanborn III, Pyke, & Sanborn, 1975).

Progress is being made in the development and use of self-evaluation, self-recording and self-observation strategies to reduce disruptive classroom behaviors. However, they require the use of external contingencies, external agents, and obtrusive self-recording devices. Self-observation also requires editing time, effort, and equipment. The challenge is to develop interventions that (a) are easy and feasible for teachers to apply, (b) have immediate and durable effects, and (c) are more powerful compared to current treatments. The purpose of this study was to examine the effectiveness of self-evaluation, self-observation, and self-observation plus self-recording in reducing disruptive classroom behaviors.

Method

Subjects and Settings

For the initial study, seven primary level (kindergarten to second grade) students participated in this study. All seven primary level students were divided into three treatment conditions: (a) self-evaluation condition (n=2), (b) self-observation condition (n=2), and (c) self-observation plus self-recording condition (n=3). Table 1 summarizes the characteristics of each subject in the initial study.

For the replication study, eight intermediate level (third to fifth garde) students participated in this study. All eight intermediate level students were divided into three treatment conditions: (a) self-evaluation condition (n=2), (b) self-observation condition (n=3), and (c) self-observation plus self-recording condition (n=3). Table 2 summarizes the characteristics of each subject in the replication study.

Table 1. Subjects' Characteristics of the Primary Students Study

Subject Condition	Age	Gender	Grade	Problem Behavior	Experimental
One	4	Male	K	Out of seat, Talking out	Self-Evaluation
Two	8	Female	2	Looking around, Talking out	Self-Evaluation
Three	6	Male	1	Talking out, Out of seat	Self-Observation
Four	9	Female	2	Looking around, Talking out	Self-Observation
Five	6	Female	1	Talking out, Out of seat, Tantrum	Self-Observation, Self-Recording
Six	7	Male	1	Out of seat, Talking out, Fights	Self-Observation, Self-Recording
Seven	7	Male	1	Looking around, Out of seat	Self-Observation, Self-Recording

Dependent Measures

Daily data collection occurred throughout all five phases (baseline, baseline with videotaping, instruction, intervention, and follow-up phases) of the study for all students by using a partial interval time sampling method. This time-based direct observation system required dividing the total observation intervals into small and equal intervals of time, and recording the occurrence or nonoccurrence of the target behavior during each interval (Tawney & Gast, 1984). Table 3 lists and defines each target behavior.

Experimental Procedures

A multiple baseline across subjects design was used to examine the effects of each intervention condition on displays of disruptive behavior. Experimental procedures and activities in the classroom focused on the five major phases of the multiple baseline design: (a) baseline, (b) baseline with videotaping, (c) instruction, (d) intervention (i.e., self-evaluation, self-observation, or self-observation plus self-recording), and (e) follow-up.

Baseline

In the first baseline, no video camera was present, and two observers recorded students' behavior during language arts or math class until relatively stable trends were noted for all subjects of each intervention group.

Baseline with Videotaping

During the second baseline, a video camera was used to record students' behaviors in math or language arts periods. Students were

Table 2. Subjects' Characteristics of the Intermediate Study

Subject Condition	Age	Gender	Grade	Problem Behavior	Experimental
A	9	Male	4	Looking around, Fights	Self-Evaluation
B	10	Male	4	Looking around, Short attention span	Self-Evaluation
C	10	Male	4	Out of seat, Talking out	Self-Observation
D	11	Male	5	Looking around, Talking out	Self-Observation
E	11	Male	5	Looking around, Talking out, Out of seat	Self-Observation
F	10	Male	4	Looking around, Talking out, Out of seat	Self-Observation, Self-Recording
G	10	Male	4	Talking out, Out of seat, Looking around	Self-Observation, Self-Recording
H	10	Female	4	Looking around, Talking out	Self-Observation, Self-Recording

told that (a) for a few weeks a graduate student from the university would be studying the daily activities of their classroom; (b) they should follow normal classroom routines and rules; (c) they should not talk to the person who operated the camera; and (d) if they had questions, ask the teacher after the class was over. This second baseline was used to accustom students to the presence of a video camera and to assess students' reactions to the video camera.

Instruction

Prior to the implementation of the interventions, each student in each treatment condition was instructed separately for 20 minutes. Using observable definitions and giving demonstrations (i.e., modeling) of each type of disruptive behavior, the investigator instructed students how to identify disruptive behaviors. Students in the self-evaluation condition received additional instruction on how to mark a picture on a self-evaluation card. The investigator modeled how to draw a circle around the picture that best expressed the student's degree of satisfaction with his or her classroom behavior.

Students in the self-observation plus self-recording intervention group received additional instruction on how to record their disruptive behaviors by using a recording card. By placing a slash on the recording card, the investigator modeled the self-recording response and then had the student practice self-recording.

Intervention

At the beginning of each math or language arts class, the investigator set up a video camera and taped the lesson and the students' behaviors. The last five minutes of each class lesson were used for the self-observation activity. The classroom teacher was instructed to teach the math or language arts class as she normally would. At the end of class, the investigator asked the students in the self-evaluation condition to mark the picture on their self-evaluation cards that best expressed their level of satisfaction about their behaviors from that class. These cards were collected, and students were directed to their next activity.

At the end of the lesson, students in the self-observation intervention condition were asked by the investigator to go to an adjacent room to view a videotape of their classroom behaviors during language arts or math class. While viewing the last five minutes of the videotape, the investigator told the students to carefully watch their behaviors. At the end of the viewing, students were returned to the classroom and directed to their next activity. No other discussion about the videotape or the students' behavior occurred.

Immediately after math class, students in the self-observation plus self-recording condition went to an adjacent room and watched a videotape of the last five minutes from their class and were told by the investigator to watch and record their disruptive behaviors with a slash in the appropriate section of their self-recording card. The investigator gave occasional verbal praise when students recorded their disruptive behaviors. No other discussion about their behavior, self-recording, or the videotape took place. After viewing the videotape, the investigator asked the students to return to their classroom and directed them to their next activity.

Results

In general, the results from this study suggested that the use of the self-observation plus self-recording intervention was associated with observed decreases in disruptive student behaviors. The results of each intervention are described separately.

Effect of Self-Evaluation

The percentage of intervals in which disruptive behaviors was emitted by Subjects One and Two (primary level) and Subjects A and B

Table 3. Operational Definitions of Target Behaviors

Target Behavior	Code	Definition
Talking Out	T	The student speaks without raising one's hand and being acknowldeged by the teacher, or interrupts the teacher or another student who is talking (e.g., calling names, yelling, answering without permission).
Out of Seat	S	The student moves from his or her chair without teacher permission. The student is considered out of his or her seat if their buttocks ever leave the chair (e.g., standing up from chair, going other places in the classroom.
Making Noise	N	The student creates any audible noise other than vocalization (e.g., kicking desk, slamming boks on desk, tapping a pencil on desk).
Touching Others	O	The student touches others or their property with hands, feet, or objects or pulls other student (e.g., pushing, grabbing, any other physical contact).
Looking Around	L	Instead of looking at the teacher, study book, or notebook, the student looks at other places (e.g., looking at the wall, looking at other people across the room, looking at the floor or ceiling).

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(intermediate level) by experimental phase is shown in Figures 1 and 2, and summarized in Tables 4 and 5.

In general, the self-evaluation intervention did not result in concurrent changes in the disruptive behaviors of primary and intermediate level students.

Effects of Self-Observation

The percentage of intervals in which disruptive behaviors were emitted by Students Three and Four (i.e., primary level) and Students C, D, and E (i.e., intermediate level) by experimental phase is shown in Figures 3 and 4 and summarized in Tables 6 and 7.

Contrasting results were found between the primary and intermediate level students. The introduction of the self-observation intervention did not result in a change in occurrence of the primary level students' disruptive behaviors; however, decreases were seen in the disruptive behaviors of the intermediate level students. The presence of the video camera was associated with contrasting results between primary and intermediate level students. The presence of the video camera led to a slight increase in the occurrence of the primary level students' disruptive behaviors, but did not appear to affect the disruptive behaviors of the intermediate level students.

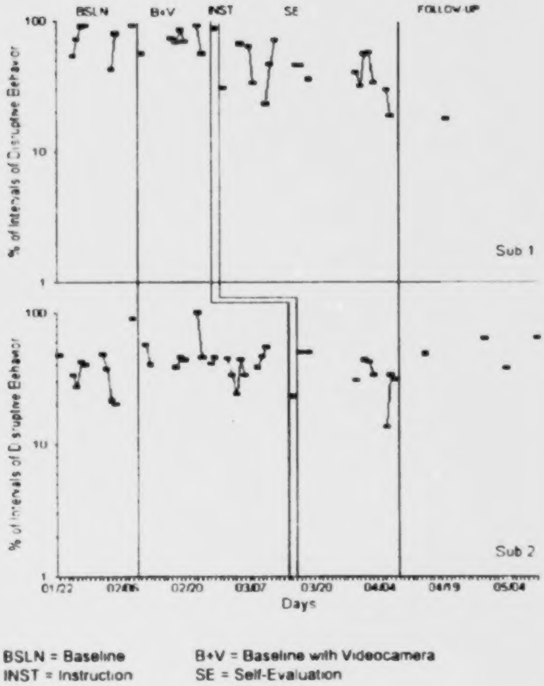


Figure 1. Percentage of intervals in which disruptive behaviors occurred across baselines and self-evalua tion conditions (Primary Level).

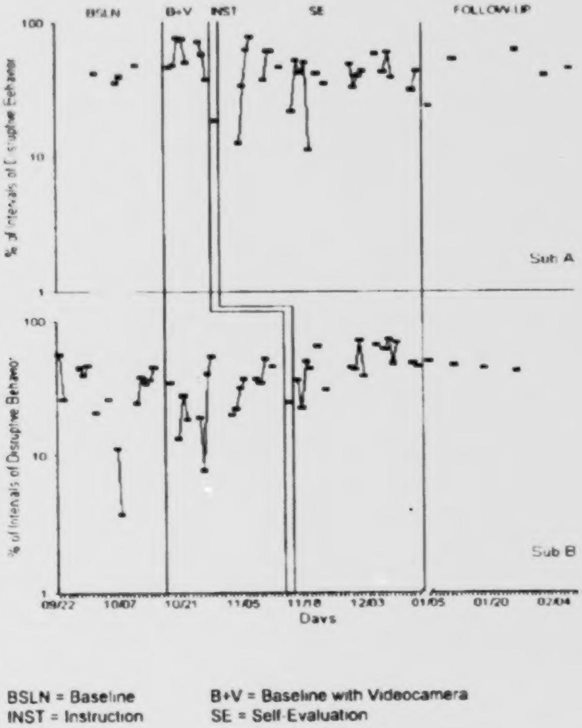


Figure 2. Percentage of intervals in which disruptive behaviors occurred across baselines and self-evaluation (Intermediate Level).

Table 4. Percentage of Intervals of Disruptive Behavior (Primary Level/Self-Evaluation)

Phase	Median	Range	Trend	Variability
Subject One				
Baseline	80	43.21-92.31	slightly increase	high
B+Video*	70	56.25-91.67	no change	low
Instruction	87.50	one data point	–	–
SE:**	42.73	18.75–71.43	slightly decreasing	high
Follow–up	60.00	one data point	–	–
Subject Two				
Baseline	38.75	20.00–90.00	slightly decreasing	high
B+Video*	44.4	24.00–100 00	slightly decreasing	high
Instruction	23.08	one data point	–	–
SE:**	33.33	13.33–50.00	slightly decreasing	low
Follow–up	56.33	38.10–65.22	slightly decreasing	low

* Baseline with videotaping; ** Self-evaluation.

Table 5. Percentage of Intervals of Disruptive Behavior (Intermediate Level/Self-Evaluation)

Phase	Median	Range	Trend	Variability
Subject A				
Baseline	40.48	35.29-47.50	increasing	low
B+Video*	53.85	37.04–76.32	slightly decreasing	high
Instruction	18.18	one data point	–	–
SE:**	42.31	11.00–77.78	slightly decreasing	high
Follow–up	44.68	23.53–61.7	increasing	high
Subject B				
Baseline	35.23	3.70–56.25	slightly decreasing	high
B+Video*	33.3	7.69–54.55	increasing	high
Instruction	25.00	one data point	–	–
SE:**	48.15	22.58–72.73	slightly increasing	high
Follow–up	45.87	42.31–50.00	slightly decreasing	low

* Baseline with videotaping; ** Self-evaluation.

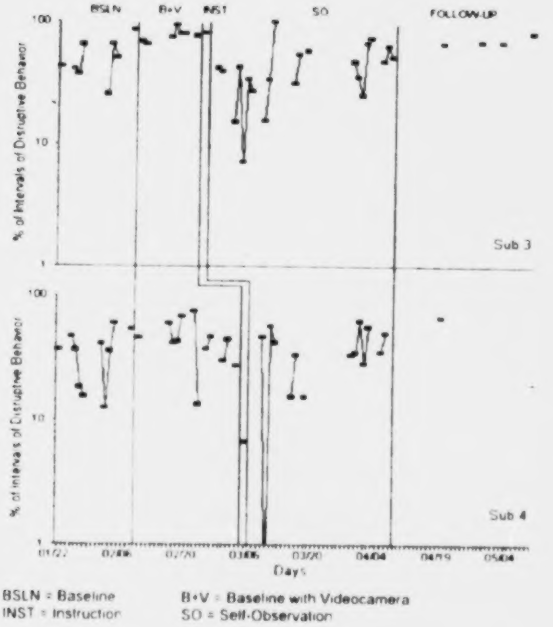


Figure 3. Percentage of intervals in which disruptive behaviors occurred across baselines and self-observation conditions (Primary Level).

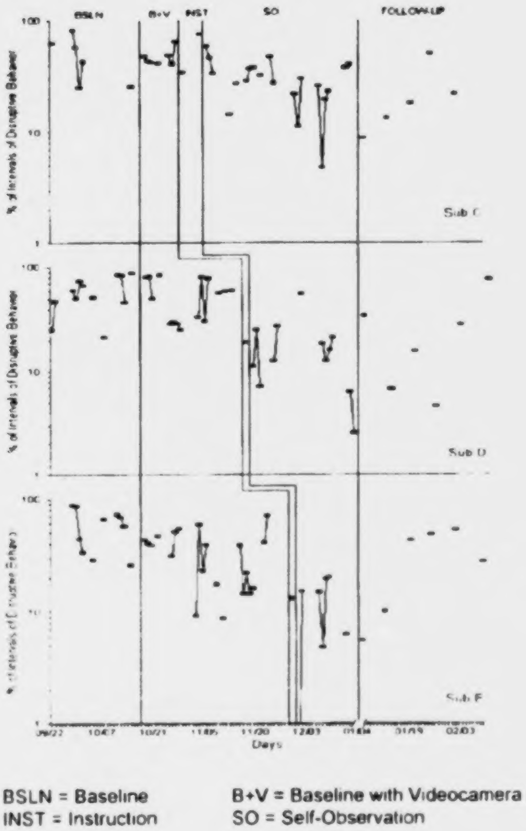


Figure 4. Percentage of intervals in which disruptive behaviors occurred across baselines and self-observation conditions (Intermediate Level).

Effects of Self-Observation Plus Self-Recording

The percentage of intervals in which disruptive behaviors were emitted by Subjects Five, Six, and Seven (i.e., primary level) and Subjects F, G, and H (i.e., intermediate level) by treatment phase is shown in Figures 5 and 6 and summarized in Tables 8 and 9.

Results from this study showed that the self-observation plus self-recording intervention was effective in decreasing students' disruptive behaviors in class. All six primary and intermediate level students decreased their disruptive behaviors concurrently with each implementation of the self-observation plus self-recording intervention. Follow-up data for the intermediate level subjects, except Subject G, suggested that the effect of the self-observation plus self-recording intervention maintained without direct intervention, while the disruptive behavior of the primary level subjects returned to the baseline level after terminating the intervention.

Table 6. Percentage of Intervals of Disruptive Behavior
(Primary Level/Self-Observation)

Phase	Median	Range	Trend	Variability
Subject Three				
Baseline	46.05	25.00–84.62	decreasing	high
B+Video*	43.33	40.74–64.29	slightly increasing	low
Instruction	55.00	34.21–75.00	increasing–	high
SO:**	29.29	4.7	increasing	high
Follow-up	69.40	66.67–82.61	slightly increasing	low
Subject Four				
Baseline	36.60	12.50–60.00	slightly increasing	high
B+Video*	42.86	13.00–75.00	decreasing	high
Instruction	6.33	one data point	–	–
SO:**	35.15	0.00–62.50	no change	high
Follow-up	66.67	one data point	–	–

* Baseline with videotaping; ** Self-evaluation.

Table 7. Percentage of Intervals of Disruptive Behavior
(Intermediate Level/Self-Observation)

Phase	Median	Range	Trend	Variability
Subject C				
Baseline	50.00	25.00–81.25	decreasing	high
B+Video*	43.33	40.74–64.29	slightly increasing	low
Instruction	55.00	34.21–75.00	increasing	high
SO:**	29.29	4.76–58.33	dereasing	high
Follow-up	18.18	8.57-50.00	increasing	high
Subject D				
Baseline	56.00	21.21–87.23	increasing	high
B+Video:*	56.52	25.00–83.33	increasing	high
Instruction	19.05	one data point	–	–
SO:**	14.31	2.50–55.56	decreasing	high
Follow-up	21.88	4.55–76.32	increasing	high
Subject E				
Baseline	61.00	25.33–87.50	decreasing	high
B+Video:*	38.28	8.70–70.00	decreasing	high
Instruction	13.04	one data point	–	–
SO**	14.81	0.00–20.00	increasing	low
Follow-up	34.96	5.71–52.63	increasing	high

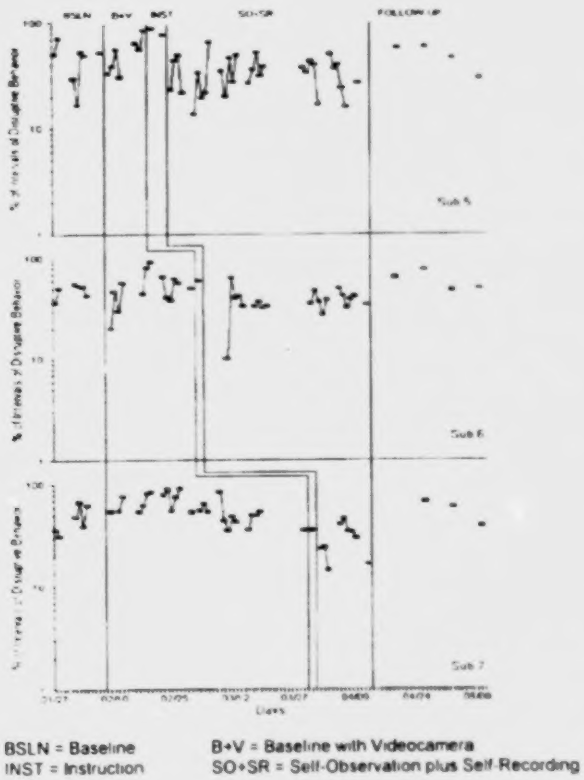
* Baseline with videotaping; ** Self-evaluation.

Discussion

The purpose of this research was to examine the usefulness of three self-management strategies in reducing the disruptive behaviors of elementary age students in class. The replication study with intermediate level students demonstrated (a) generality of the treatment effects on higher grade level students, (b) reliability of the research findings, and (c) external validity of the procedures. Because comparisons across the treatment groups cannot be made with single subject, multiple baseline research design employed in this study, the results of each treatment are discussed separately.

Effect of Self-Evaluation

The results of the self-evaluation study show that the self-evaluation intervention alone was ineffective in decreasing students' disruptive behaviors in class. The ineffectiveness of self-evaluation in this study can be attributed to two factors which are significantly different from previously successful studies. First, in this study, the self-evaluation intervention was implemented alone, while past successful studies used a combination of treatment pro-



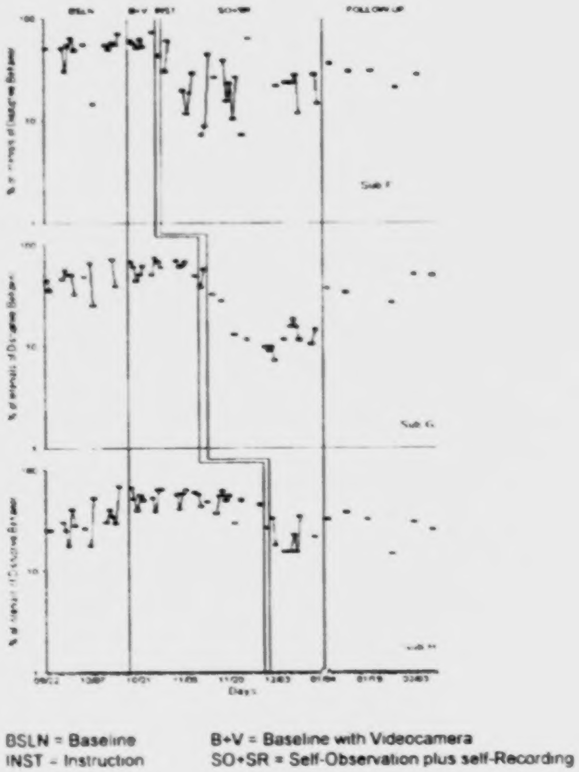


Figure 5. Percentage of intervals in which diruptive behaviors occurred across baselines and self-observation plus self-recording conditions (Primary Level).

Figure 6. Percentage of intervals in which diruptive behaviors occurred across baselines and self-observation plus self-recording conditions (Intermediate Level).

Table 8. Percentage of Intervals of Disruptive Behavior (Primary Level/Self-Observation plus Self-Recording)

Phase	Median	Range	Trend	Variability
Subject Five				
Baseline	49.07	16.67–70.80	no change	high
B+Video*	59.52	30.43–87.88	increasing	high
Instruction	82.00	75.67–87.89	decreasing	low
SO+SR:**	34.05	13.51–64.29	slightly increasing	high
Follow-up	51.45	29.73–58.14	decreasing	low
Subject Six				
Baseline	42.22	16.67–55.26	slightly decreasing	high
B+Video:*	56.52	30.00–91.43	slightly increasing	high
Instruction	60.00	one data point	–	–
SO+SR:**	37.50	10.00-63.64	no change	high
Follow-up	56.92	47.73–76.19	decreasing	low
Subject Seven				
Baseline	48.65	31.25–66.67	increasing	high
B+Video:*	54.45	35.48–90.48	decreasing	high
Instruction	35.89	one data point	–	–
SO+SR**	32.24	14.00–46.00	increasing	high
Follow-up	60.53	39.29–67.86	decreasing	low

* Baseline with videotaping; ** Self-Observation plus Self-Recording.

cedures that included external reinforcement, token economy, modeling, and/or matching with teacher's evaluation as well as self-evaluation (Rhode, Morgan, & Young, 1983; Smith, Young, West, Morgan, & Rhode, 1988; Sweeney, Salva, Cooper, & Talbert-Johnson, 1993). Such results suggest that various self-evaluation procedures should be incorporated into a packaged treatment.

A second difference between previous successful studies and the current one was the provision of criteria for self-evaluation. In this study, when the investigator asked subjects to mark the picture on their self-evaluation cards, specific criteria were not given to the subjects; only the self-evaluation card was provided. In other studies using self-evaluation, however, students were given specific criteria whenever they made their own judgements about their behavior or performance (Hughes, Ruhl, & Peterson, 1988). The failure of the self-evaluation intervention in this study may be related to subjects experiencing difficulty with what and how to evaluate their behaviors.

Effect of Self-Observation

The results of the self-observation study are inconclusive and equivocal. Contrasting results were found between the primary and intermediate level students. The introduction of the self-observation intervention did not result in a change in the occurrence of the primary level students' disruptive behaviors; however, decreases were seen in the disruptive behaviors of the intermediate level students.

A possible reason for this difference may be related to factors, such as, subjects' age, academic and social learning history, and intelligence. While the primary level subjects in this study were 6-year-old and 9-year-old children diagnosed as having emotional and behavioral disorders and/or learning disabilities, the intermediate level subjects in this study were 10 to 11 years old who did not have such labels and had average intelligence. The ineffectiveness of the self-observation intervention for primary level students supports the study of Clark, Kehle, Jenson, and Beck (1992) who concluded that younger children may be at a disadvantage to achieve behavioral benefits from self-observation. Primary level subjects in this study may not have learned the discrimination between appropriate and inappropriate behaviors while viewing videotapes. Additional research is needed to discover what types of children can benefit from the self-observation intervention.

In addition to the age factor, the mixed results in the self-observation study can be attributed to two more factors. First, students'

Table 9. Percentage of Intervals of Disruptive Behavior (Intermediate Level/Self-Observation plus Self-Recording)

Phase	Median	Range	Trend	Variability
Subject F				
Baseline	52.94	14.29–69.35	slightly increasing	high
B+Video*	57.17	50.00–71.43	increasing	low
Instruction	42.31	one data point	–	–
SO+SR:**	22.90	7.14–61.54	no change	high
Follow-up	29.41	20.59–35.29	decreasing	low
Subject G				
Baseline	46.42	25.00–70.45	slightly decreasing	high
B+Video:*	60.35	43.33–73.08	slightly increasing	high
Instruction	48.00	37.50–56.52	–	–
SO+SR:**	12.90	7.14–32.14	no change	high
Follow-up	36.67	26.47-50.00	decreasing	low
Subject H				
Baseline:	29.41	17.65-67.74	increasing	high
Overall				
B+Video:*	52.38	29.41–65.85	no change	high
Instruction	26.47	one data point	–	–
SO+SR**	19.65	15.38–34.29	increasing	lows
Follow-up	31.91	14.71–37.50	slightly decreasing	low

* Baseline with videotaping; ** Self-Observation plus Self-Recording.

behaviors were videotaped daily. Then, immediately after math class, students viewed the last five minutes of the unedited videotape from their class. The assumption was that watching inappropriate behaviors in unedited tape would teach students to discriminate between their appropriate and inappropriate behaviors. The results of the study with intermediate level students supported this hypothesis. Previous studies using unedited tape also showed improved student behaviors (Booth & Fairbank, 1984; Esveldt, Dawson, & Forness, 1974; Schwarz & Hawkins, 1970; Walther & Beare, 1991). In past studies, however, an edited tape of the subjects' appropriate behaviors was shown repeatedly under the assumption that occurrences of behavior would change from repeated observations of oneself displaying desired behaviors (Davis, 1979; Kehle, Clark, Jenson, & Wampold, 1986; McCurdy & Shapiro, 1988; Woltersdorf, 1992). Further research is needed to clarify the distinct effects of using edited and unedited tape in self-observation interventions.

The second factor was using a "pure" self-observation intervention in this study. The results with intermediate level students in this study are consistent with those of previous studies using the self-observation intervention, in that self-observation itself was effective in increasing students' appropriate behavior (Dowrick, 1978; Esveldt, Dawson, & Forness, 1974; Woltersdorf, 1992). In contrast, other studies suggest that self-observation, in its "purest form" may not be sufficient (Booth, & Fairbank, 1984; Clark, Kehle, Jenson, & Beck, 1992; Davis, 1979; Fouts, 1974; Greelis & Kazaoka, 1979; Kehle, Clark, Jenson, & Wampold, 1986; McCurdy & Shapiro, 1988; Schwarz & Hawkins, 1970; Walther & Beare, 1991). However, those studies employed self-observation in conjunction with in-class group contingencies and/or other self-management strategies, or used prompts (e.g., "behave well while videotaping") and/or instruction. Future research is needed to examine the relative effects of individual variables when self-observation is combined with other strategies.

Effect of Self-Observation Plus Self-Recording

Results from this study showed that the self-observation plus self-recording intervention was effective in decreasing the occurrence of students' disruptive behaviors in class. All six primary and intermediate level subjects decreased their rates of disruptive behaviors concurrently with each implementation of the self-observation plus self-recording intervention within a multiple baseline design.

This finding is congruent with findings from previous research using self-observation plus self-recording interventions to improve students' behavior (Booth & Fairbank, 1984; Schwarz & Hawkins, 1970; Walther & Beare, 1991). Distinctively, however, this study did not include experimenter (or teacher) discussions with subjects while they were viewing videotapes, and the results suggested that discussions with the teacher and social reinforcement were not necessary to improve students' behavior in class. Such results indicated that students can discriminate between their appropriate and inappropriate behaviors without external help while viewing unedited tape.

The self-observation plus self-recording intervention was designed under the basic assumption that the effects might be enhanced if the strengths of self-observation and self-recording are combined. The major strength of self-observation is that it gives students more accurate feedback about their behavior than other procedures, that is, self-observation improves accuracy of self-perception (Booth & Fairbank, 1984; Fuller & Manning, 1973; Griffith, 1974; Walther & Beare, 1991). By watching their own behaviors, students can see what is and what is not appropriate, the conditions under which these behaviors are occurring, and the possible positive and negative consequences and benefits associated with these behaviors. In addition, self-recording has therapeutic reactive effects in that behavior change is observed during self-recording without specific programming of the consequences (Kirby, Fowler, & Baer, 1991; Lipinski & Nelson, 1974). The self-recording procedure accentuates the relationship between the self-recorded behavior and its consequences, which ultimately control the frequency of the behavior (i.e., by providing reinforcement or punishment) (Mace & Kratochwill, 1985). In this study, self-recording of inappropriate behavior can increase the salience of the relationship between disruptive behavior and its delayed aversive consequences (i.e., viewing and recording inappropriate behavior), as well as naturally occurring consequences (i.e., negative consequences given when videotaped in the class). The results of this study suggest that the combination of self-observation and self-recording is effective in decreasing the occurrence of students' disruptive behavior in class.

Data collected during one month follow-up periods indicated that self-observation plus self-recording effects did not maintain for all subjects after terminating the intervention. The results suggested that maintenance does not occur automatically after terminating the intervention simply because behavior change (i.e., subjects' decreasing disruptive behavior) is accomplished during the intervention period (Stokes & Baer, 1977). Therefore, specific programming for maintenance should be developed.

To facilitate maintenance of students' appropriate behavior, teachers should give appropriate feedback (e.g., kind and schedule of reinforcement) when target students display appropriate behavior in class (e.g., raising hand instead of talking-out) (Stokes & Baer, 1977; Wolery, Bailey, & Sugai, 1988). In the discussion of generalization guidelines, Wolery, Bailey, and Sugai (1988) suggested that "after the behavior has been reinforced purposefully a few times in the natural environment, the naturally occurring contingencies can be used" (p.324).

Fading procedures also have been suggested as a way to achieve response maintenance (Woltersdorf, 1992). Instead of abrupt termination of the intervention, reducing the frequency of self-observation or implementing an alternate self-recording procedure may facilitate maintenance of appropriate behavior.

Suggestions for Future Study

Several suggestions for future research were noted in this investigation. First, future research is needed to determine what effects these self-management procedures would have with other students who might vary in age, grade, learning history, behavior problems, etc. Results from this study suggested that differential effects are possible between primary and intermediate grade students.

Second, future research is needed to determine which specific procedural components of the self-management interventions are necessary to produce durable results for children displaying highly disruptive behavior in class. Based on the results of this study and review of previous studies, further research is needed to (a) examine the necessity of an externally provided criterion and a cuing procedure for self-evaluation performance; (b) clarify the distinct effects of using an edited tape versus unedited tapes in the self-observation intervention; (c) identify the specific effects of self-observation and the conditions under which these effects are observed; (d) examine the differential effectiveness of self-observation plus self-recording with and without teacher feedback; and (e) determine the effects of the immediacy, frequency, and length of viewing videotape in self-observation and self-observation plus self-recording interventions.

Third, future research is needed to ascertain whether teachers can use these intervention strategies effectively. In the current study, intervention procedures were implemented by the experimenter. To examine the feasibility of this intervention in the classroom setting, future research should involved trained teachers who would use this intervention in their classrooms.

An additional suggestion for future study is the investigation of treatment effects outside the treatment condition (response generalization). That is, future replications and extensions of this study should investigate whether students who were trained to use a self-observation plus self-recording intervention under one set of stimulus conditions would use it in another condition (e.g., different class settings), and if treatment effects observed in one setting are observed in another.

Finally, future studies should consider the usefulness of self-observation plus self-recording interventions on facilitating academic performance as well as classroom social behavior. In addition, future studies should attempt to control for the occurrences and effects of changes in instructional practices and classroom routines.

Conclusions

The results of this study provide promising support for the use of self-management strategies in the classroom. Students can be taught to watch and record their own behaviors, and their classroom behaviors can be improved. The results of this study also suggested that the self-observation plus self-recording intervention may be a viable alternative for teachers who would like to make use of existing equipment as a behavior management tool. The intervention procedure can be used with minimal classroom teacher supervision time in any classroom which has access to videotaping equipment. This intervention is relatively simple to use, requires little time to implement, and is unobtrusive. Another advantage of using this intervention in the classroom is that teachers also can watch or listen to their own classroom behavior to determine whether they gave appropriate and consistent reinforcement, instruction, and corrections.

Because satisfactory maintenance effects were not obtained, perhaps the most promising feature of self-observation plus self-recording will be its use as a procedure for initiating desirable levels of appropriate behavior to a point where the teacher can more easily reinforce the desired behavior. In other words, specific programming for maintenance should be developed.

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Steps and Practical Guidelines for Developing and Implementing Self-Management Programs for Children's Social Behavior on the Playgrounds

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THERE IS NO QUESTION ABOUT THE IMPORTANCE OF CHILDREN'S SOCIAL SKILLS. ON THE school playgrounds, especially, a child's age-appropriate interpersonal skills play a critical role for his/her meaningful relationship with peers. These social skills provide the child with the channel through which he/she can give and receive positive social rewards, which, in turn, leads to increased social involvement and further positive interaction (Michelson, Sugai, Wood, & Kazdin, 1983). However, children with social skills deficits are likely to be ignored and rejected by their peers in social settings (Carter & Sugai, 1989; Hops, Finch, & McConnell, 1985; Odom, McConnell, & McEvoy, 1992). There is evidence that a child's inability to interact with the peer group may have a profound impact on his or her academic standing and, subsequently, on later career choices and social well-being (Hartup, 1979; Hops, 1982; Horn & Packard, 1985). In fact, researchers consistently have indicated that children with social skills deficits are significantly more vulnerable than their counterparts to various school-related and later social problems (Bender, 1987; Cowen, Pederson, Babigan, Izzo, & Trost, 1973; Hops et al., 1985; Kupersmidt, Coie, & Dodge, 1990; Roff, Sells, & Golden, 1972; Schloss & Schloss, 1987; Ullmann, 1957).

In the past two decades, behavioral interventions aimed at improving the social behavior and peer relationship of students with social skills deficits have shown dramatic increases in number and complexity (Hops, 1982; Michelson, et al., 1983; McEvoy, Odom, & McConnell, 1992). Several different strategies have been used effectively to develop social skills: instruction, modeling, role-playing, positive reinforcement, training in problem-solving skills, and so

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on. Despite their effectiveness on skill acquisition, the most consistent problem with social skills training programs has been the maintenance and generalization of learned social skills. An instructional program's usefulness is most limited if the students do not perform their new skills in natural settings or maintain them over time. Researchers (e.g., Berler, Gross, & Drabman, 1982; Walker, McConnell, Walker, et al., 1983) who have applied contingency management systems to enhance the maintenance and the generalization of behavior changes have often failed. The common problem found by those researchers was that the contingency management systems have not been strong enough to facilitate lasting change in the students' social skills.

External management procedures have dominated behavioral interventions for promoting the generalization of the academic and social behaviors of students with special needs (Gardner & Cole, 1989). A typical external agent of managing school programs is a teacher who assumes responsibility for monitoring, evaluating, and reinforcing student behaviors in various school settings where behavioral principles are systematically applied. Externally managed interventions generally require a tremendous amount of teacher time and effort. Although the efficacy of externally managed programs has been well documented, several researchers (e.g., Kazdin, 1975; Kneedler & Hallahan, 1981; Medland, 1990) have argued that teacher-managed, external control techniques promote student passivity, failing to actively involve students in their own behavior change progress. In other words, externally administered contingencies may be ineffective in sustaining students' "motivation" (Stipek, 1993, p. 67). Lepper and his colleagues (Greene & Lepper, 1974; Lepper, 1981; Lepper, Greene, & Nisbett, 1973), furthermore, suggest that simple external rewards for children to engage in tasks may have adverse long-term effects on their task performance that is often in clear contrast to immediate positive effects. Greene and Lepper (1974) said that the use of extrinsic rewards by classroom teachers may negatively affect "children's subsequent intrinsic interest in the activity for which rewards were provided" (p.1141).

Since the early 1970s, various strategies of self-management (e.g., self-monitoring, self-evaluation, self-graphing, self-instruction) have received increased attention as viable techniques for involving students in their own behavior change process and as promising methods for the generalization and maintenance of behavior change (Hughes, Ruhl, & Misra, 1989). Use of self-management procedures has resulted in improvement in academic performance (Glomb & West, 1990; Lalli & Shapiro, 1990) and on-task behavior (Blick & Test, 1987; Lloyd, Bateman, Landrum, & Hallahan, 1989; Sugai & Rowe, 1984). Although academic and on-task behaviors have been the dominant areas with which self-management procedures were used, other non-academic behaviors have not been totally excluded from self-management approach. These non-academic behaviors include appropriate classroom behavior (Rhode, Morgan, & Young, 1983; Smith, Young, West, Morgan, & Rhode, 1988) and vocational behavior (McNally, Kompik, & Sherman, 1984). Researchers (e.g., Kazdin, 1984; Lloyd, Landrum, & Hallahan, 1991; Wolery, Bailey, & Sugai, 1988) believe that teaching self-management skills may increase the effectiveness of an intervention, save teachers' time, and promote the generalization and maintenance of treatment effects. Overall, it is evident that self-management strategies are effective in improving the performance levels of academic and social behaviors of children, if they are used systematically and appropriately.

Generally, self-management is defined as one's ability to engage in those behaviors that facilitate changing or maintaining one's own behavior. Self-management interventions mean teaching students to engage in some behaviors designed to change or maintain their own behaviors. For example, when children are taught to observe their own behavior and record their observations in a certain way, the self-management procedure can be referred to as self-monitoring. Operationally, self-management interventions on the playgrounds involve teaching a student to engage in certain behaviors (e.g., self-recording, self-evaluation, self-reinforcement, self-graphing, self-talking) in an effort to change the probability of occurrence of a target behavior (Cole & Bambara, 1992; Liberty & Michael, 1985; Nelson, Smith, Young, & Dodd, 1991).

In contrast to externally managed programs, self-management procedures are designed to teach students to manage their own behaviors. In other words, self-management allows the students to function more independently. Not surprisingly, several studies (e.g., Kauffman, Lloyd, & McGee, 1989; Laycock & Tonelson, 1985) report that both regular and special education teachers consider students' demonstration of self-management as a highly desirable characteristic. Although self-management strategies have been widely recommended as promising methods for the acquisition and generalization of various skills, including interpersonal skills, self-management intervention does not appear to be used on a widespread basis in school settings (Cole & Bambara, 1992). Especially, there are few, if any, reports on the use of self-management strategies for children's social behaviors on the playgrounds. It may reflect the lack of clear definition of self-management, sound theoretical foundations, and sufficient empirical support. Above all, it seems apparent that there are few practical guidelines available for teachers and practitioners using self-management strategies for their children's playground behaviors.

Even though dealing with the issues of definition, theoretical underpinning, and empirical evidence is worthwhile, it is beyond the scope of this paper. The main focus of this paper is placed on the practical steps and guidelines for teachers and other practitioners developing and implementing self-management programs for their children's social behaviors on the school playgrounds. Six steps for developing and implementing a self-management program are presented within three broad phases (i.e., assessment, intervention, and evaluation): (a) gathering information about target behaviors and settings, (b) analyzing the information, (c) teaching specific interpersonal skills, if necessary, (d) selecting self-management strategies, (e) teaching self-management skills, and (f) evaluating the program.

Assessment

Conducting assessment is crucial not only because it provides the current performance levels of appropriate/inappropriate behaviors, but also because it defines the range of situations in which the problem behaviors occur, and determines whether a child has a specific skill in his behavior repertoire (Lewis, Heflin, & DiGangi, 1991; O'Neill, Horner, Albin, Storey, & Sprague, 1990; Wolery et al., 1988). Teachers and practitioners can use the assessment information to develop an instructional program and evaluate its effectiveness. Treatment decisions should be made from the assessment information, not from a teacher's "best hunch." In other words, a child-specific intervention program should be developed on the basis of the detailed information about the variables related to or responsible for the child's behavioral problems.

Step 1: Gather Information about Target Behaviors and Settings

In this information gathering step, first of all, target behaviors and settings should be defined operationally. Being defined "operationally" means that target behaviors are clearly stated in observable and measurable terms. Teachers and practitioners are recommended to focus on observable, measurable behaviors and setting variables. For example, when a teacher says that Tommy is extremely aggressive with his peers on the playgrounds, the teacher would describe the behavior more clearly by saying that Tommy hits or pushes other children five times on the average during a 15 minute recess in the jungle gym area. Making an operational definition of target behavior allows a teacher to pay attention directly to students' responses, communicate objectively with other personnel, and measure students' performance reliably (Wolery et al., 1988).

This information gathering step should focus on external environmental events as well as a child's personal characteristics. The information may be obtained through conducting direct observation, reviewing office records, rating behavioral performance, and/or interviewing with significant individuals of the target child. Among these methods, direct observation of children in natural settings is considered as the most powerful technique. In contrast to the other "second-hand" data collecting methods, direct observation allows a teacher to get "first-hand" data through observing students' behaviors and their interactions in the very place where the behaviors are displayed. With this first-hand data collecting procedure, a teacher can increase the objectivity of information. In other words, this "direct" observation reduces greatly the possibility of subjective interpretations which may be easily involved in the process of other data collection procedures such as archival reviews and adult ratings. Even though direct observation often appears to be time-consuming, and even intrusive, it may let a teacher collect behavioral samples from the immediate settings in which the target behaviors occur. The behavioral samples can be used as instructional examples in developing intervention programs for the target child. When data are collected frequently and regularly through direct observation, the data can be used to evaluate a child's performance on an on-going, regular basis, so that a teacher can determine the direction of the child's progress and evaluate the effectiveness of an intervention.

Along with direct observation, other information collecting methods can be effectively used in the frame of a multi-method assessment approach. Review of office records, behavioral rating by teachers, and/or interviews with significant individuals of the target child may provide a broad picture of target problems. Through these procedures, a teacher can get information about setting events related to the occurrence of target behaviors (Sugai & Tindal, 1993). Although setting events are temporally remote from the immediate behavioral context, they appear to influence the occurrence of a behavior. Frustration from math class, for instance, may be functionally related to the occurrence of Tommy's aggressive behavior (i.e., hitting & pushing) during the following recess time on the playgrounds. In addition, information about a child's characteristics (e.g., handicapping conditions, cognitive reasoning skills) should be gathered through the multi-method assessment. Apparently, some self-management strategies are useful only with individuals who possess certain characteristics. For example, the effectiveness of self-instruction which is a cognitive-based self-management strategy is highly dependent on verbal and cognitive reasoning skills.

Step 2: Analyze the Information

One of the primary objectives of assessment is to obtain information from which a child-specific instructional program can be derived. In this step, a teacher is to analyze systematically the collected information and develop an intervention plan based on the analysis. Specifically, a teacher should determine whether predictable relationships exist between a child's behavior and environmental variables (both temporally immediate & remote events). It is recommended that a teacher identify the communicative function (e.g., getting social attention, escaping from aversive situation) of a problem behavior. For example, Tommy's aggressive behavior (i.e., hitting & pushing others) may function to gain attention from a playground monitor. Once the function of a problem behavior has been known, an effective intervention plan can be developed.

In this information analyzing step, a teacher also should determine whether certain social skills are in the target child's behavior repertoire. In other words, the teacher should determine whether the child's behavioral problems on the playgrounds are due to social skills deficits or performance deficits. For example, if Tommy shows correctly how to respond appropriately to his peers teasing him in a classroom role-play situation but does not perform the behavior on the playgrounds, his interpersonal skill problem may be due to a performance deficit. If Tommy cannot give the socially correct response, his social skill problem is probably due to a skill deficit. In the case of skill deficits, certain social skills should be directly taught.

Intervention

Two important factors of behavior change are the environment and the person. Although there have been numerous theoretical explanations for the effects associated with self-management strategies, most evidence suggests that behavior change is a function of the individual's prior external reinforcement history and observational learning experience (Bandura, 1971; Karoly & Kanfer, 1974; Rimm & Masters, 1979). The search for the determinants of self-effected behavior change should focus on environmental rather than hypothetical events (e.g., "self," "ego strength," "internalization") (Bandura & Walters, 1963; Kanfer, 1975; Rachlin, 1974). Within this framework, either the self-recording responses or self-administered consequences serve as discriminative stimuli.

Step 3: Teach Specific Interpersonal Skills, If Necessary

All instructional decisions should be based on individual student needs. If a child has social skills deficits, he should be provided with direct social skills instruction first. A teacher can either develop social skills lessons or use published curricula. The following are some useful social skills curricula:

- *Skillstreaming* (Goldstein, Sprafkin, Gershaw, & Klein, 1980; McGinnis, Goldstein, Sprafkin, & Gershaw, 1984).
- *Getting Along with Others* (Jackson, Jackson, & Monroe, 1983).
- *The Walker Social Skills Curriculum* (Walker, McConnell, Holmes, et al., 1983; Walker, Todis, Holmes, & Horton, 1983).

Basically, social skills are taught to students in the same way as academic skills. Typical social skills training procedures consist of some combination of instruction (discussion), modeling, role-playing (rehearsal), coaching, performance feedback, and homework. Using a comprehensive training package is assumed to maximize the treatment effects (Christoff & Myatt, 1987). It is recommended that social skills be taught in groups of 3 to 5 students. A teacher may employ some behavior management procedures (e.g., group point system) for the social skills training group. Most importantly, a teacher should focus on the natural context in which his/her students are supposed to use the learned skills. Ideally, social skills should be taught in actual settings. At least, a teacher should make sure that instructional examples/nonexamples are carefully selected from the natural context. It is also important to reinforce a child whenever he uses the learned skills.

Step 4: Select Self-Management Strategies to Teach

Several procedures (e.g., self-instruction, self-selection of consequences, self-determined performance criteria, self-recording, self-punishment, self-evaluation, self-reinforcement, self-graphing) have been categorized as self-management. Although the procedures are closely related, each has a somewhat different emphasis. Typically self-recording, self-evaluation, self-reinforcement, and self-instruction are identified in the literature (Hughes et al., 1989; Nelson et al, 1991).

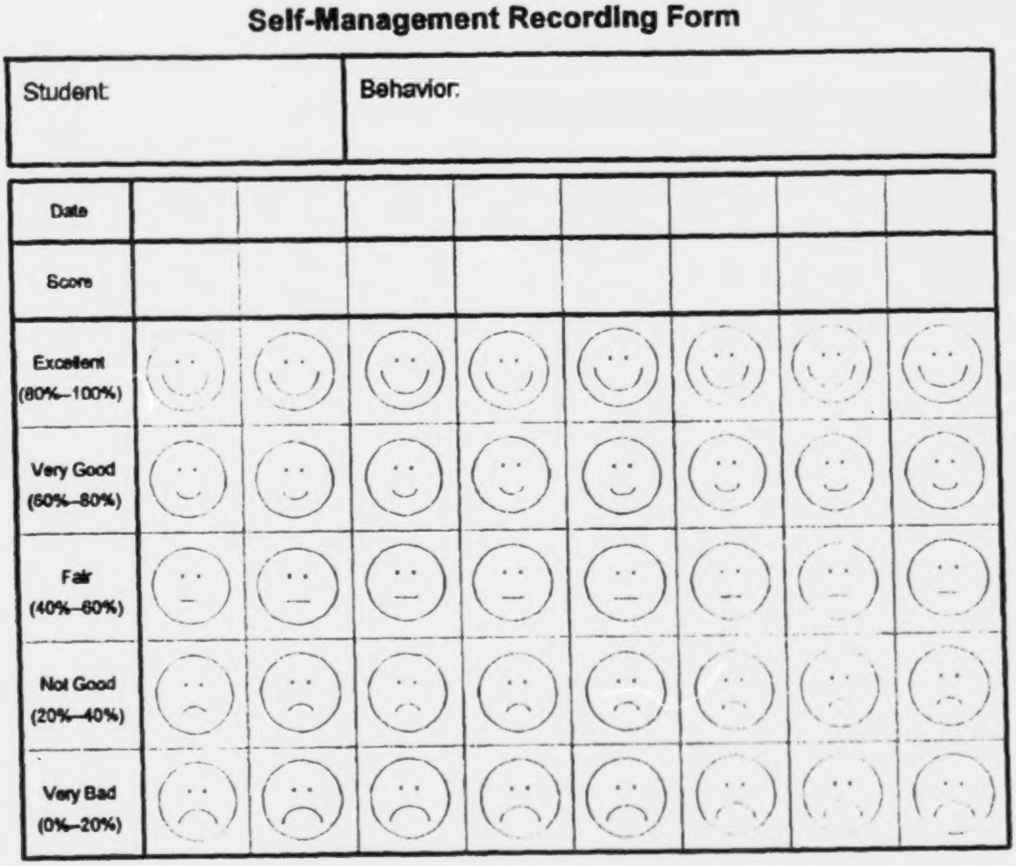
Self-recording requires students to assess objectively whether a given behavior or a set of behaviors has occurred and then record its occurrence. It is often the preferred procedure because the technique is quite straightforward and simply requires an individual to self-observe and self-record. Although the procedure was initially used as an assessment technique, many researchers have taken advantage of the reactive effects of self-recording in order to change students' behavior in school settings (Blick & Test, 1987; Lalli & Shapiro, 1990; Lloyd et al., 1989; Sugai & Rowe, 1984). Self-recording procedures are similar to those for data collection (e.g., event recording) and usually consist of making a mark with a pencil on a recording form. On the playgrounds, however, children can be taught to use a counter (e.g., a golf-counter), move an object (e.g., a marble, a penny) from one pocket to another, or get involved in some other action to indicate the occurrence of a certain behavior (e.g., folding a small piece of colored paper). Whatever the students use for self-recording, they must be taught to discriminate the relevant features of the target behavior and determine when, where, and how they should conduct self-recording (Sugai & Tindal, 1993).

Self-evaluation teaches students to compare their behavior to a set of predetermined criteria and make a judgment about the quality or acceptability of the behavior by matching their behavior to the criteria. The criteria can be established by either a child himself or a teacher. Self-reinforcement occurs when students reward or reinforce themselves for performing some behavior. Self-reinforcement is composed of several aspects including self-selecting and self-administering a reinforcer contingent upon meeting some performance standard (Baer, Fowler, & Carden-Smith, 1984; Hayes et al., 1985). Practically speaking, a student can be taught how to engage in self-evaluation and/or self-reinforcement when he is fluent at recording his own behavior (Sugai & Tindal, 1993). Self-instruction is covert language directed toward oneself. A student is trained to make specific self-statements or suggestions that prompt specific kinds of behaviors. Self-instruction programs usually include other components of self-management such as self-recording and self-evaluation.

Even though some researchers used a particular procedure alone (e.g., self-recording in Blick & Test, 1987) as self-management treatment, many studies have evaluated the effects of multiple self-management procedures and/or other external behavior management procedures combined into a package. The packages have been used both as treatment methods to produce behavior change and as strategies to promote maintenance and generalization of behavior gains obtained initially from other externally managed treatment programs (e.g., Agran, Salzberg, & Stowitschek, 1987). A systematic combination of self-management strategies has been suggested by some researchers (e.g., DiGangi & Maag, 1992) to maximize the treatment effects on the generalization of target behavior.

Recently, the present author (Kim, 1995) conducted a research project examining the effects of combined self-management strategies on children's playground social behaviors. In the study, four elementary school children (3rd graders) with social skills deficits were taught, each day for about 15 minutes, how to use a set of self-management skills (i.e., self-recording, self-evaluation, & self-graphing) on the school playgrounds. A model-lead-test format was used to teach these component skills to the children. Each student was given a golf-counter for self-recording and taught how to use it. They were told to observe their own behaviors and add a point by pressing the counter button whenever they follow each rule of previously learned social skills during recess on the playgrounds. At the end of recess, the students were to read the total points appearing on their counters and write them in the score section of the self-management recording sheet (see Figure 1). After recording the number of following social skill rules, the students were told to evaluate their performance with a five level rating scale (i.e., excellent, very good, fair, not good, & very bad). They were to circle one of five faces corresponding to their value. The happiest face means excellent performance and the saddest face represents very bad performance. They were told criteria for self-evaluation before evaluating (see Figure 2). After circling one face, they connected the face to the previous one with a straight line by using a thick, colored pen.

As mentioned in the information gathering step, the usefulness of self-management strategies is often limited by a child's personal characteristics. While some self-management strategies (e.g., self-monitoring) have been used with a wide range of population, others



Self-Management Recording Form

Student:	Behavior:

Date								
Score								
Excellent (80%–100%)								
Very Good (60%–80%)								
Fair (40%–60%)								
Not Good (20%–40%)								
Very Bad (0%–20%)								

Figure 1. Self-management recording form.

Criteria for Self-Evaluation

Level	Criteria
😊 Excellent	Followed rules of social skills (almost) all the time. 80-100% of opportunities.
🙂 Very Good	Followed rules of social skills most time (some failures). 60-80% of opportunities.
😐 Fair	Followed rules of social skills some times. 40-60% of opportunities.
🙁 Not Good	**Not** followed rules of social skills many times. 20-40% of opportunities.
☹ Very Bad	**Not** followed rules of social skills (almost) all the time. 0-20% of opportunities.

Figure 2. Criteria for self-evaluation.

(e.g., self-instruction, self-reinforcement) have been employed only with certain groups of children. By their very nature, for example, cognitive-based self-management strategies require that students already possess particular skills such as verbal and cognitive reasoning skills. Obviously, very young children or students with cognitive disabilities are not likely to benefit from these strategies in the same way as adolescents or regular education children. Even with contingency-based strategies, a teacher should always be ready to modify self-management procedures according to the child's age, ability level, and other conditions.

It is notable that not all students would respond positively to self-management procedures. For some children, self-management activities may be a distraction interfering with their behavioral performance; whereas, for others, self-management procedures may appear to be a reinforcing activity. To date, unfortunately, there is little empirical evidence revealing what specific individual variables are related to or responsible for the effectiveness of self-management intervention. Thus, along with assessment information, some pilot trials of certain procedures on the playgrounds may be helpful in selecting specific intervention strategies for a child.

Step 5: Implement Self-Management Program

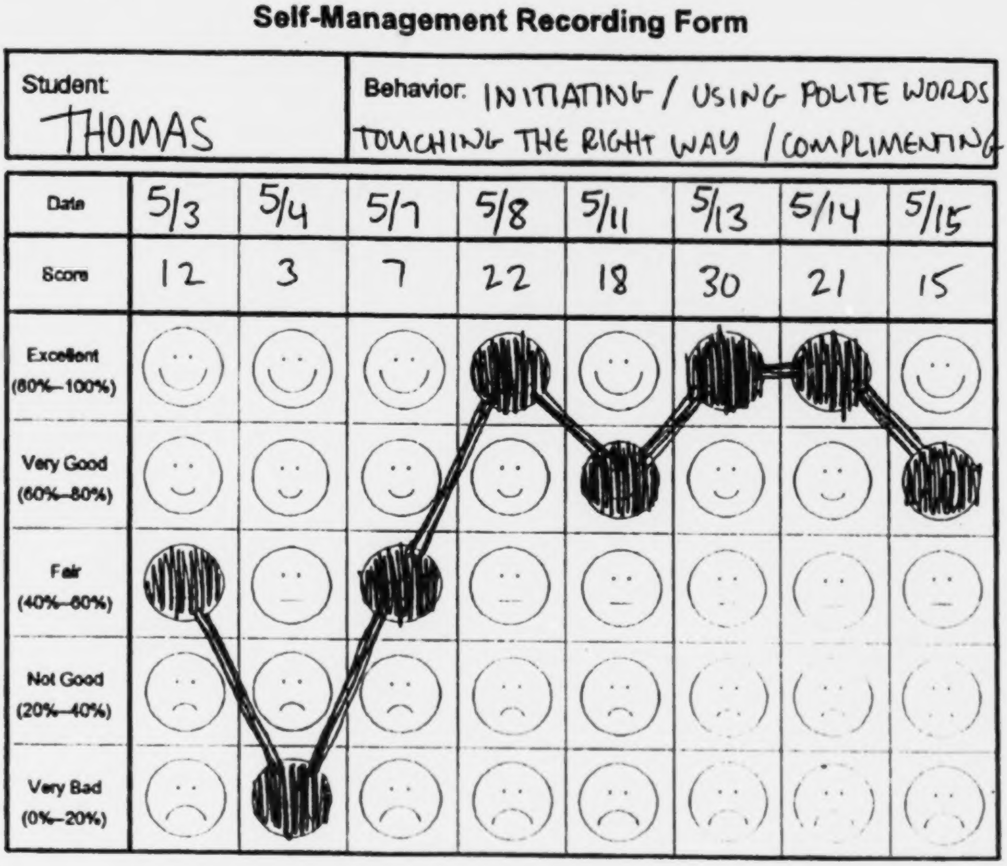
In implementing self-management intervention programs, a teacher can modify the procedures in several ways. First of all, a teacher may compare student self-recording and/or self-evaluation with those of him/her. The purpose of this matching technique is to have students learn the process of self-management based on the expected performance level of their teacher. Even though the accuracy in self-recording and self-evaluation may not necessarily result in the improvement of student social behavior (Lloyd et al., 1991), at least it can allow a teacher to be sure that his/her students know what, when, and how to observe, record, and evaluate their own behaviors. The matching procedure developed by Rhode et al. (1983) appears to be useful. Although the procedure was included in their self-management intervention package for classroom rule-following behavior, it can be applied to playground interpersonal behavior with or without minimum modification. In their matching procedure, each student is awarded points (token reinforcement) when his rating matches within the acceptable level of teacher rating. If a student's rating is exactly the same as that of the teacher, the student is awarded a bonus point. Once the students establish acceptable levels of accuracy, the matching procedure is systematically eliminated. The token reinforcement system (point exchange for backup rewards) is also gradually faded out.

In contrast to traditional teacher-managed programs, self-management interventions are designed to help students play a central role in their own behavior change process. The successful implementation of self-management programs is heavily dependent on students' active participation. Therefore, a critical task of a teacher may be to motivate the students to actively participate in the self-management activities. It is important to note that, especially in the early phase of self-management interventions, a teacher should establish incentives for self-management responses and social behavior changes. The teacher also should make sure that natural environments do support and reinforce the behavioral changes of his students on the playgrounds. Without the environmental support, lasting behavior changes cannot be expected.

Students must have a clear idea of the required self-management responses on the playgrounds. The self-management skills should be directly taught in the same way as other academic skills or social skills. As mentioned in earlier steps, each self-management skill should be systematically instructed through accurate modeling and sufficient practice. In addition to initial instruction of self-management, periodic booster sessions may be needed for some students. Self-management programs must be simple and easy to teach, but powerful. It is important that the self-management procedures are age-appropriate and motivating to the students. In Kim's study, for example, the self-recording/self-evaluation sheet functions simultaneously as a graph. The students (3rd graders) in the study used thick, colored pens to connect the faces they chose through self-evaluation. Figure 3 shows a sample self-management recording form filled with fictitious information.

Evaluation

Once a self-management intervention program is implemented, a teacher should determine whether the program is effective. Both empirical outcomes and qualitative reports may be used to evaluate the intervention success.



Self-Management Recording Form

Student: THOMAS

Behavior: INITIATING / USING POLITE WORDS TOUCHING THE RIGHT WAY / COMPLIMENTING

Date	5/3	5/4	5/7	5/8	5/11	5/13	5/14	5/15
Score	12	3	7	22	18	30	21	15
Excellent (80%–100%)				●		●	●	
Very Good (60%–80%)					●			●
Fair (40%–60%)	●		●					
Not Good (20%–40%)								
Very Bad (0%–20%)		●						

Figure 3. Self-management recording form completed with ficticious information.

Step 6: Evaluate the Program

It is recommended that a teacher assess the student's progress on a formative basis (Sugai & Tindal, 1993). That is, the teacher should collect student performance data on a continuous basis. By doing that, the teacher may make systematic data-based decisions on an ongoing basis (Tawny & Gait, 1984). With continuous direct observation data, the teacher can visually analyze the data patterns (i.e., trend, level, & variability). Conducting the visual analysis enables a teacher to closely monitor the direction, magnitude, and stability of the data, and make timely adjustments to the intervention program if necessary.

The overall effectiveness of intervention can be evaluated by significant individuals of the student. Teachers, playground monitors, peers, and even the student him/herself may assess the appropriateness of the program procedures and outcomes. A teacher may compare the new levels of the student's social behavior to the performance levels of immediate peers as well as general population.

Summary

In contrast to externally managed programs, self-management procedures are designed to teach students to manage their own behaviors. Self-management interventions on the playgrounds involve teaching a student to engage in certain behaviors (e.g., self-recording, self-evaluation, self-graphing) in an effort to change the probability of occurrence of a target behavior. Self-management strategies are relatively easy to use. If they are used systematically and appropriately, self-management strategies may produce lasting social behavior changes and save teachers time.

The present paper was devoted to provide the practical steps and guidelines for teachers and other practitioners developing and implementing self-management programs for their students' social behaviors on the school playgrounds. Teaching self-management skills directly and assessing social behavior on an ongoing basis have been emphasized throughout the six steps for developing and implementing a self-management program. The steps include (a) information collection, (b) information analysis, (c) interpersonal skills instruction, (d) self-management strategy selection, (e) self-management intervention implementation, and (f) program evaluation.

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A Comparison of the Effects of Direct Instruction in Reasoning with Constructivism on Deductive Reasoning

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KNOWLEDGE CONSISTS PRIMARILY OF GENERALIZATIONS AND NON-GENERALIZABLE FACTS. Generalizations include concepts, rules, algorithms, heuristics, strategies, patterns, schemata, systems, and virtually anything that can be systematically applied to more than one event. Teaching students to derive or construct generalizations from events of experience and use them appropriately are major goals of education.

The knowledge required to construct generalizations, or reason, also consists of a set of generalizations. So generalizations can be classified as either content generalizations or reasoning generalizations. Reasoning generalizations used in the process of constructing knowledge generalizations are primarily inductive or deductive processes. One reasons inductively by studying events or examples to form a generalization. One reasons deductively by logically concluding a new generalization from known generalizations.

Current instructional approaches for improving reasoning can be categorized very roughly as "explicit" or "inquiry/constructivist." These labels refer to whether the targeted generalization is defined by the instruction (explicit) or not (inquiry/constructivist). Many research reviews conclude that inquiry/constructivist methods, though less effective in teaching content generalizations, result in better reasoning performance than explicit methods (Breddermann, 1983; Shayer & Adey, 1993; Shymansky, Kyle, & Alport, 1983; Staver & Small, 1990). However, these conclusions are misleading because of the way explicit instruction is usually defined; that is, the explicit treatments usually teach only content generalizations (e.g., volume displacement) and do not explicitly teach reasoning generalizations at all (e.g., scientific inquiry).

For example, several studies compared (a) an explicit treatment designed to teach the displacement principle (i.e., the amount of liquid displaced by an object is equal to the volume of the object) with (b) inquiry instruction designed to teach students to derive the principle of displacement through their own inquiry (e.g., Bay, Staver, Bryan, & Hale, 1992). Students were evaluated on their inquiry skills, that is, how well they derived new content generalizations in science. Explicit treatment conditions were rarely designed to teach these inquiry skills.

It is not surprising when studies with this design find that inquiry teaching methods result in better reasoning than "explicit" instruction. However, conclusions about explicit treatments for teaching reasoning cannot be based on observations of the effects of explicit instruction designed to teach only specific content generalizations.

A number of studies have compared inquiry instruction and explicit instruction more fairly, in the area of inductive reasoning, also called science inquiry. Ross (1988) comprehensively reviewed the results of a number of studies comparing the effects of inquiry instruction and explicit instruction designed to teach students how to control variables. Ross found that the more explicit instruction the instruction was, the more effective it was. Similarly, Rubin & Norman (1992) compared the effects of explicit and inquiry instruction on the science inquiry skills of special education students and found similar results. Special education students did better with explicit instruction. The present study involved a similar comparison in the area of deductive reasoning.

Not all Explicit Instruction is Effective

Some argue that nonexplicit methods result in better "transfer," meaning they improve the learner's future ability to form their own generalizations, or learn (Frederickson, 1984; McDaniel & Schlager, 1990; Novak, 1990; Peat, Mulcahy, & Darko-Yeboah, 1989; Salomon, Perkins, & Globerson, 1991). The term transfer is often used loosely in the literature both to refer to flexible application within the scope of the instructed material and to refer to transfer to new learning outside the scope of the instructed material. A more accurate golf stroke after building accuracy in ball batting would be within-scope application flexibility. Faster acquisition of skill in bicycle riding after being taught to bat a ball would be outside-scope transfer.

The scope of nonexplicit instruction is difficult to define, making within-scope and outside-scope distinctions difficult. In discussing explicit instruction, however, the distinction between within-scope flexibility and outside-scope transfer is important. The ability to reason effectively in a wide range of contexts is within the scope of instruction that explicitly teaches a widely applicable reasoning strategy, while the ability to reason and learn is not within the scope of instruction that explicitly teaches specific content generalizations. Instruction that explicitly teaches reasoning must only result in within-scope flexibility to demonstrate the desired behavior, and the ability to reason and learn. Within-scope flexibility is a more attainable instructional objective than outside-scope transfer. In fact, transfer (e.g., faster acquisition of the skill of bicycle riding after being taught to bat a ball) does not seem to occur in learning to any measurable extent at all (Gick & Holyoak, 1987; Salomon, Perkins, & Globerson, 1991).

Constructivists claim that flexibility results from meaningful learning. Many constructivists further claim that explicit instruction can never result in meaningful learning (DuCharme, Earl, & Poplin, 1989; Novak, 1990; Salomon & Perkins, 1989). Research shows this assertion is true for some forms of explicit instruction. Explicit instruction that presents only solved problems and no generalizable principle, or gives only a complicated statement of a generalizable principle with no guided application practice at all, often results in less meaningful or rote learning that is not used with flexibility (Catrambone & Holyoak, 1989; Hendrix, 1961; Katona, 1940, Kittell, 1957; Wittrock, 1963).

The National Center to Improve the Tools of Educators (NCITE) has distinguished effective explicit instruction from ineffective explicit instruction in their research reviews (Carnine & Shinn, in press). Effective instruction includes, among other things, making generalizable knowledge "conspicuous" to learners. Rather than simply verbalizing the steps in a strategy, the effective instructor would model the strategy and scaffold students' initial attempts to apply the strategy. The initial communication serves more to focus attention on critical aspects of the learning than to fully communicate meaning. Meaningful understanding is developed through the application practice. These guided applications are engineered to deepen understanding of the learning (Carnine & Kameenui, 1992). Furthermore, effective instruction is neither student-dominated nor teacher-dominated. Rather, it is teacher-directed instruction seen as interaction between teacher and students. The theoretical basis for this type of explicit instruction also has been described by Rosenshine and Stevens (1986) and others (e.g., Brophy & Good, 1986; Pressley, Harris, & Marks, in press).

Conspicuous Strategy Instruction in Deductive Reasoning

Deductive reasoning involves deriving a new generalization from known generalizations or applying a generalization to a specific situation. A generalization can be stated as an *if* statement: If it is A, then it is B. The same rule also can be simply stated as "all A's are B's." For example, "if something cools, then it will contract" can be stated as "all things that cool contract." "If it is a cow, it is an animal" can be stated as "all cows are animals." Two generalizations can be combined deductively to result in the construction of a new generalization. For example, "All things that cool contract. All things that contract become more dense. Therefore, all things that cool become more dense." Or generalizations can be deductively applied to cases that either match the first part ("these are cows," so we know they are animals), or negate the second part ("these are not animals," so we know they cannot be cows).

For a conclusion to be valid, the evidence must rule out all other possibilities. The most common reasoning error seems to involve making conclusions when other possibilities are not fully ruled out by the evidence. For example, things identified as animals, or things identified as contracting could be situations to which the above generalizations might be applied: All cows are animals; this is an animal, so it must be a cow. Similarly, all things that cool contract; this thing is contracting, so it must be cooling. In both of these applications no definite conclusion can be made. Animals may or may not be cows; contracting objects may be contracting because they are under pressure, not necessarily because they are cooling. The evidence does not rule out these other possibilities. Generalizations formed in these situations, where no definite conclusion can be made, result from invalid deductive reasoning. The fact that most reasoning errors result from making conclusions (generalizations) where none can logically be made, has been well documented in all populations (Ceraso & Provitera, 1971; Chapman & Chapman, 1959; Haars & Mason, 1986; O'Brien, 1972; O'Brien, 1973; O'Brien & Shapiro, 1968; Roberge, 1970; Shapiro & O'Brien, 1970).

Ineffective Explicit Instruction

Two studies illustrate why explicit instruction in deductive reasoning is sometimes not effective. In a study by Bachus (1983), two explicit treatments were compared with a no treatment control. The scores of the control group were higher than those of the two treatment groups on all posttesting occasions.

In explaining the results, the author suggests that the instruction did not teach properly or was not long enough to have the necessary potency. (Each treatment was 3 hours long.) A closer look at the instructional tasks reveals that the instruction actually contradicted the learning measured by the posttest, the Cornell Conditional Reasoning Test (Ennis, Gardiner, Guzzetta, Morrow, Paulus, & Ringle, 1964) . The posttest required a very remote type of transfer from the instruction rather than application. The strategy that was taught had few, if any, elements in common with the strategy that was tested. In fact, being a very contrived strategy with limited utility, it may have acted more as a buggy algorithm that interfered with performance on the posttest (Brown & Burton, 1978; Brown & VanLehn, 1980, 1982; Doyle, 1983; Engelmann & Carnine, 1991; Romberg & Carpenter, 1986).

One explicit treatment, the linguistic intervention, would result in a strategy which would interfere with performance on the posttest. For example, one of the 40 instructional items from the linguistic intervention follows:

> *Premise:* If there is a boy present then there is a girl present.
> *Conclusion:* There is only a girl present.
> YES NO MAYBE

In all the instructional problems there was no condition. Contrast the above instructional problem with the same one if it were rewritten in the format of an item from the posttest:

> Suppose you know that…
> *Premise:* If there is a boy present then there is a girl present.
> *Condition:* There is a girl present.
> Then would this be true?
> *Conclusion:* No boy is present.
> YES NO MAYBE

Without a condition the instructional items make little sense, and there is never a "Yes" possibility. ("Maybe" was a correct response on 30 instructional items, "No" was a correct response on 10.) The instruction required subjects to practice a different reasoning strategy than the conditional reasoning strategy that was required by the posttest. The instructional strategy, besides having very contrived and limited applicability, also has few, if any, elements in common with the strategy required for conditional reasoning. To perform, the transfer subjects would have to develop a new and unique strategy, a much more difficult task than applying or modifying an applicable reasoning strategy.

The other explicit intervention in the Bacchus study, the logic intervention, did not provide any practice discriminating valid from invalid conclusions. The logic intervention presented 20 logical puzzles for which there was always a valid conclusion. Invalid problems (those which require "Maybe" as a correct response) did not occur. In contrast, half of the problems on the Cornell test require "Maybe" as a correct response.

The fact that the treatment groups scored lower than the control group on the posttest is not surprising given that the reasoning strategies practiced in the instruction created expectations that would result in errors on the Cornell test. Extending the instructional time for these two interventions might predictably result in even lower scores as subjects would become more apt to give wrong answers, the types of answers learned in the interventions.

Besides the differences in the strategies, the linguistic intervention was not clear. For example, the answer given for the linguistic item presented above was as follows:

> "The correct answer is *maybe* because *if* means supposing that; on condition that; or in case; and *then* means in that case; or therefore; so maybe there is only a girl present."

The answers were always explained using these definitions of *if* and *then* which were taken from a dictionary. These explanations would probably confuse most 7th and 11th graders. Explicit information can only be expected to add to instructional effectiveness if it is understandable.

Seidman (1990) found similar evidence that explicit instruction can interfere with learning when the instructed reasoning strategy is not generalizable. In that study, instruction in the logic of computer programming interfered with subjects' logical thinking. Computers use only binary procedures, while the human mind can also use conditional reasoning. Subjects in Seidman's study who learned a computer programming language (LOGO), were more likely to interpret conditional statements as binary (also called biconditional interpretations), than subjects who had not learned LOGO. That is, the subjects learning programming would interpret a statement like "If it is a cow, it is an animal" to also mean "If it is not a cow, it is not an animal." With this reasoning, all animals end up being cows. Subjects had adopted the binary reasoning procedures of a computer as their own. Apparently, without some thoughtful alignment between the instruction and the outcome goals, it seems unlikely that explicit instruction in reasoning will improve reasoning.

The Importance of Depth of Processing

Using high school learning disabled subjects, Grossen and Carnine (1990) investigated the importance of requiring greater depth in processing the meaning of a strategy in class reasoning. The treatment group with the greater depth of processing was required to draw Euler-type diagrams to solve logic problems before viewing the multiple choices for response. Subjects in the other treatment group simply viewed the diagrams presented by the computer and selected their response. In all other aspects the strategy and the instructional design used in both treatments were identical. Because the instruction was delivered via computer and the criteria for remediation loops were identical for both treatments, instructional time was allowed to vary.

The strategy involved an explicit set of rules for syllogistic reasoning. Students drew one Euler-type diagram first to determine if a definite conclusion could be made and then to form that conclusion, when it existed. The Euler strategy can be called semantic, even though the classes themselves may be non-meaningful symbols, such as A or B. The only attribute of meaning that is relevant to logical operations is the inclusive or exclusive relationship between the classes in a logical statement. This relationship is made quite concrete in Euler diagrams.

The greater depth-of-processing provided by requiring subjects to illustrate each step in the process (diagram-drawing group) resulted in significantly higher scores on more difficult problem types—invalid arguments and arguments having a conclusion beginning with the word "some"—than the group with less depth-of-processing (screen-viewing group). Even though the instructional problems had been identical for both groups, performance varied between groups by problem type. In contrast to the screen-viewing group who was much less proficient with invalid arguments than with valid ones, the diagram-drawing group was as proficient with invalid arguments as they were with valid ones. There was no significant difference in instructional time (M=13 hours); although drawing diagrams took additional time, subjects in that group required significantly fewer examples to reach criterion. Group differences maintained over a two-week interval of no instruction.

Overall the conspicuous strategy was effective. In a quasi-experimental comparison, the performance of the learning-disabled students in the diagram-drawing group was equivalent to that of a group of gifted peers and to that of a group of university students. As a rough gauge of comparison with previous studies, scores on the problematic invalid syllogisms can be compared. The performance of the learning-disabled subjects drawing diagrams in the Grossen and Carnine study (1990) was 61% correct on invalid syllogisms, while the performance of college subjects in the Simpson and Johnson study (1966), where instruction focused on invalid syllogisms, was only 31% correct.

Subjects who were proficient in the reasoning strategy showed a tendency to creatively modify the strategy to solve problems with evidence in different forms from the forms the students had learned and to solve problems stated less formally than students had practiced. Five flexibility measures required subjects to use the reasoning strategy on tasks that were within the scope of the strategy, but outside the range of applications students had practiced during instruction. On three successive, parallel-form flexibility measures, flexibility seemed to improve spontaneously over time by simply doing the flexibility measures, without teacher feedback on the correctness of their work. The better performance on flexibility measures indicated that a conspicuous strategy could result in application flexibility. Grossen and Carnine (1990) hypothesized that if the instruction provided varied practice in the use of the reasoning strategy in practical contexts, the application flexibility of students would improve considerably. (See Grossen, 1992, for an explanation of the relevance of syllogistic reasoning in practical contexts.)

A Constructivist Alternative

Denying the need for conspicuous strategy instruction in reasoning, Wood and Stewart (1987) hypothesized that because most people can cope with the ordinary tasks of life, they possess a basic ability to reason. They reasoned that, therefore, students should learn to utilize better the logic skills they already possessed through playing a computer game, which required their use. Wood and Stewart (1987) used a computerized version of *Mastermind* for this purpose in a study involving college-age subjects and found positive effects on reasoning. *Mastermind* is a two-person game, where one person is designated the "codemaker" (the computer) and the other is the "codebreaker" (the student). The codemaker's task is to create a "code" consisting of a set of two to six pegs, each of which may be one of five different colors. These are kept hidden from the codebreaker, whose task is to "break" the code by finding the correct combination of colored pegs in the designated positions. On each trial, the codebreaker chooses some combination of colors and positions for the pegs, and the codemaker provides feedback regarding the correctness of the codebreaker's choices. The object of the game is to break the code in the fewest number of trials.

Laughlin, Lange, and Adamapoulos (1982) determined that the feedback rules define *Mastermind* as a reasoning problem. The first choice by the codebreaker is essentially a guess, possibly based on a strategy for systematically ruling out possible combinations for the hidden code. However, after receiving feedback from the computer on that first choice, various classes of alternative codes can be eliminated by correct inferences until all but the correct code is eliminated.

Wood and Steward (1987) found the computerized *Mastermind* offered several advantages:

> "First, because the game is devoid of concrete linguistic content, skills learned from playing it should not be bound to a particular set of materials, but could result in more general transfer of training. Second, assuming that people do possess some logical skills from previous experience, the game provided a mechanism for practicing those skills with immediate feedback and without the need for extensive, formal instruction in the principles of logic. Third, one can become relatively skilled at playing the game with just a few hours practice. Fourth, combinations of both inductive and deductive logic skills are required to play the game efficiently and effectively. Fifth, the difficulty level can be in-

creased in a step-wise fashion through a rather broad range as one becomes more proficient at playing. Finally, the game has motivational qualities (cf. Laughlin et al., 1982)" (p. 50, Wood & Steward, 1987).

The Purpose of the Study

The present study was designed to evaluate the application flexibility effects of the same conspicuous strategy treatment used in the Grossen and Carnine (1990) study when a wider range of scaffolded application practice was provided as part of the instruction. The same conspicuous strategy was taught via computer to both special and general education students in a common classroom environment.

The effects of the conspicuous strategy treatment were experimentally compared with a constructivist treatment that also was delivered via computers in a game-like format. The primary game used in the constructivist treatment was a computerized version of *Mastermind*. The constructivist group received the same wide range of application practice.

Method

Subjects and Setting

This study was conducted in a rural high school. One hundred and twelve middle school and high school students (grades 7 to 12) participated in this study. Sixty-four of these students were matched in pairs based on the pretest and randomly assigned to the following two experimental groups: (a) the Conspicuous Strategy Group (n = 37 including 9 special education students) and (b) the Constructivist Group (n = 23 including 5 special education students). These two groups did not differ on their GPA's and their Comprehensive Achievement Test scores, nor on their oral reading fluency test scores. Forty-eight additional students who participated in the study were not randomly assigned. Twenty-three of these students made up the Control Group, which received no special instruction in reasoning. The Control Group also included no special education students. A total of 30 special education students participated in this study including 4 teacher-identified at-risk students. Table 1 describes the subjects.

Procedures

This study had two treatment groups, the Conspicuous Strategy treatment and the Constructivist Strategy treatment, as well as a control group (no treatment). Both of the treatments were designed to teach logic skills. In addition to the logic programs, both treatment groups received instruction in how to check the accuracy of facts using the New Grolier Electronic Encyclopedia CD-ROM (1991) and varied application practice. What follows are descriptions of the programs: their hardware requirements, instructional content, and classroom procedures.

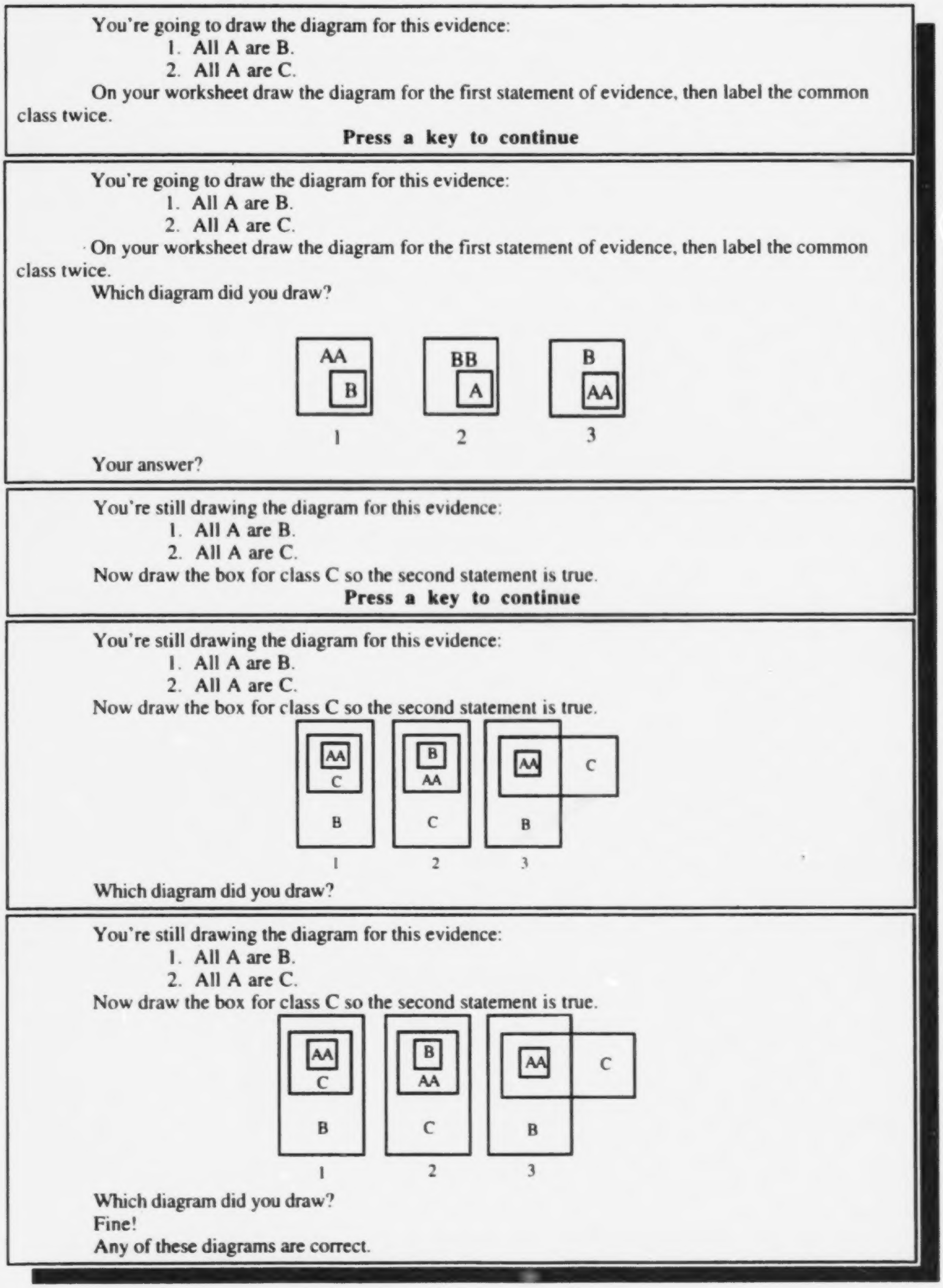
Conspicuous Strategy Treatment: DIAL Logic

Hardware Requirements

The Conspicuous Strategy treatment utilized the Direct Instruction Authoring Language (DIAL) Logic program. DIAL Logic requires an IBM-compatible computer with an XT/8088 CPU or higher, 128K RAM, and a CGA, EGA, or VGA monitor.

DIAL Logic Program

DIAL Logic is a 64 lesson program developed by Grossen and Carnine, 1988. The program presents a question or statement on screen, and then the student does one of the following: (a) draws a Euler diagram to help determine an answer to the question; (b) selects an answer by typing in a number or letter; (c) types in a response; or (d) hits the space bar to move to the next frame in the program (see Figure 1). If the student's answer is correct, the program praises the student and moves to the next question. If the student makes an incorrect response, the program provides immediate, elaborated, correc-



You're going to draw the diagram for this evidence:

1. All A are B.
2. All A are C.

On your worksheet draw the diagram for the first statement of evidence, then label the common class twice.

Press a key to continue

You're going to draw the diagram for this evidence:

1. All A are B.
2. All A are C.

On your worksheet draw the diagram for the first statement of evidence, then label the common class twice.

Which diagram did you draw?

Your answer?

You're still drawing the diagram for this evidence:

1. All A are B.
2. All A are C.

Now draw the box for class C so the second statement is true.

Press a key to continue

You're still drawing the diagram for this evidence:

1. All A are B.
2. All A are C.

Now draw the box for class C so the second statement is true.

Which diagram did you draw?

You're still drawing the diagram for this evidence:

1. All A are B.
2. All A are C.

Now draw the box for class C so the second statement is true.

Which diagram did you draw?

Fine!

Any of these diagrams are correct.

Figure 1. Sample of the DIAL Logic program.

Table 1. Groups and their Compositions in this Study

		Number in each age group						Gender	
	n	7th		8th		High School			
		SpEd	Gen	SpEd	Gen	SpEd	Gen	Boys	Girls
Experimental									
Conspicuous strategy	37	0	8	4	10	5	10	20	17
Constructivist	27	0	11	1	7	4	4	23	4
Total	64	0	19	5	17	9	14	43	21
Quasi-experimental									
Conspicuous strategy	62	10	8	4	10	11	19	36	26
Constructivist	27	0	11	1	7	4	4	23	4
Control	23	0	0	0	0	0	23	10	13
Total	112	10	18	5	17	15	46	69	43

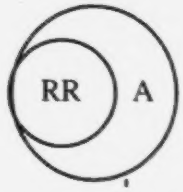
tive feedback, then recycles the missed question to be presented later. Students who did not meet a mastery criterion of 80% on a lesson were branched to previously covered material for review. Students were notified by the program when they had high rates of first time success on lessons, thereby skipping remediation loops.

DIAL Logic incorporates many features from the mastery learning literature to improve student performance. For instance, the use of immediate corrective feedback was mentioned previously in this paper. Some other features include: short lessons, interspersed and cumulative reviews, and practice until mastery was demonstrated.

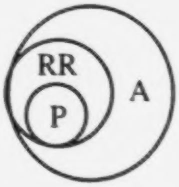
Instructional Content

The DIAL Logic program uses Euler diagrams to teach syllogistic reasoning. The strategy had students draw one Euler diagram to determine if a definite conclusion could be made, and then to form the conclusion if that was possible. The strategy was made "conspicuous" by directly teaching all of the steps in drawing Euler diagrams, rather than having students "discover" the rules through repeated exposure to problems.

For example, when presented with the evidence "All rhus are anacardiceae; All poison oak are rhus," the students would draw one circle inside another and label the twice-stated class twice. Rhus is stated twice, so it is labeled twice:

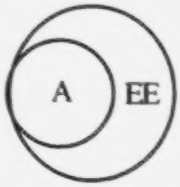


The students learned to draw the last circle so as to make the second statement true. The circle for the last class, poison oak, is drawn inside the circle for rhus, because the first word is all:

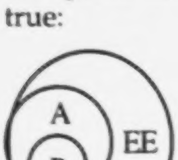


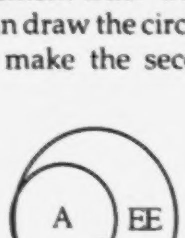
The conclusion is read by stating the relationship between the classes that are not labeled twice: All poison oak (P) are anacardiceae (A).

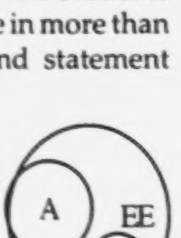
In the following example, no definite conclusion can be made from the evidence: "all aves are eukaryotes; all plants are eukaryotes." The first step has the student draw aves insideeukaryotes, because the first word is all, and then label eukaryotes twice because it is stated twice:



The students then attempt to show the conclusion by drawing the last circle so as to make the second statement true. But the students find that they can draw the circle in more than one place and make the second statement true:







The students learned the rule that if you can show a conclusion with more than one possibility, then you have no definite conclusion. In this example, the conclusion can be drawn in three places, so there is no definite conclusion.

Classroom Procedures

Each student had a floppy disk that contained his/her own program. After logging onto the network, the students inserted their floppy disks and began working on DIAL from the point where they had left off. The students kept track of their progress on a public poster by recording the number of lessons they had completed each day. The students also recorded the amount of time they worked each day on a log-in sheet next to their computer. Students from both the Conspicuous Strategy and Constructivist Strategy groups worked on their programs during the same period, but in adjacent rooms. There were at least three monitors to help students with the computers or with questions about the different programs. Both treatments lasted approximately 30 days, or 12 weeks. Students attended their respective treatments 3 days per week because of the school schedule. The instructional time for the different treatments was equivalent.

Constructivist Strategy Instruction: MasterMind and Minesweeper

Hardware Requirements

A computerized version of *Mastermind*, called *MisterMind* and *Minesweeper* were used. Both *MisterMind* and *Minesweeper* require a Microsoft Windows 3.0 or 3.1, a hard disk, a mouse, an AT/286 or 386 computer, and an EGA or VGA monitor.

Instructional Content

The Constructivist Group was provided with commercially available computerized programs designed to increase students' thinking skills. The primary program used was *MisterMind* (public domain). *MineSweeper* ((packaged with Microsoft Windows) was also used. These programs were selected because they required students to rule out possibilities, which was a fundamental skill in the Conspicuous Strategy treatment.

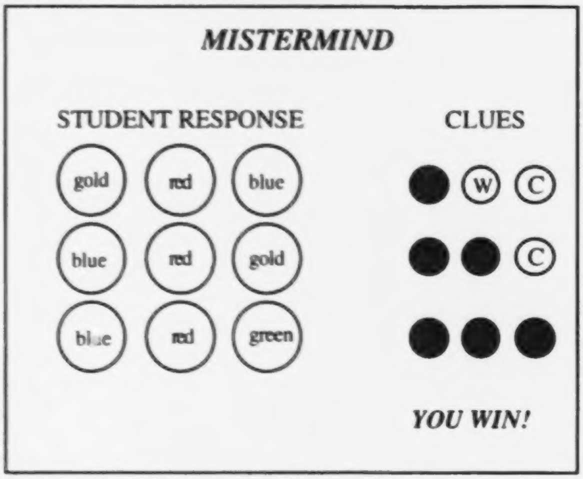

MISTERMIND
STUDENT RESPONSE
CLUES
gold
red
blue
W
C
blue
red
gold
C
blue
red
green
YOU WIN!

Figure 2. A black and white illustration of MisterMind.
***Note that the computer version is in color.*

MisterMind is a computer game similar to that used in the Wood and Stewart (1987) (Figure 2). The computer ("the Code Maker") secretly makes a pattern of three to six available colors. The subject ("the Code Breaker") doesn't know what colors are selected and in what sequence. The object of the game is for the student to identify the sequence of colored pegs in as few moves as possible by efficiently ruling out impossible combinations. For each move, the computer provides clues indicating how many of the Code Breaker's pegs are placed in the correct position (Figure 3).

MisterMind provides more variations than the board game in terms of the number of pegs and colors. This variation allowed the researchers to set increasing levels of problem difficulty as daily challenges.

Minesweeper provides a designated number of covered squares among which a certain number of squares contain mines. Some squares, when uncovered, show numbers indicating the number of surrounding squares containing mines. Other squares contain mines, which end the game when uncovered. The objective of the game is to uncover all of the nonmine squares using the number clues. Subjects must use clues from more than one square to identify additional squares that do not contain mines and to provide more clues, thus allowing them to win the game. For example, a blank shows that none of the eight surrounding squares contain a mine. The objective of the game is to uncover all of the nonmine squares using the number clues.

Classroom Procedures

The students worked individually, as well as in groups on *MisterMind* and *Minesweeper*. The students spent approximately 75% of the instructional time on *MisterMind*, and 25% on *Minesweeper*. The students were encouraged to share with one another their strategies for efficiently solving the puzzles. During each day, the experimenter set a "daily challenge" for the students to meet. The MisterMind challenge required students to break the code using an efficient strategy 3 times in a row, as

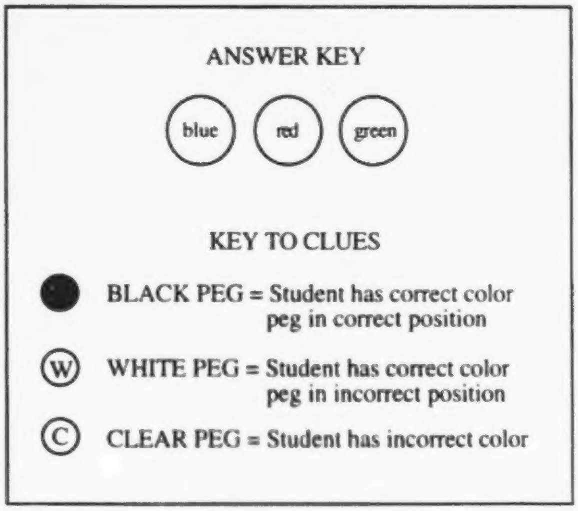

ANSWER KEY
blue
red
green
KEY TO CLUES
BLACK PEG = Student has correct color peg in correct position
W
WHITE PEG = Student has correct color peg in incorrect position
C
CLEAR PEG = Student has incorrect color

Figure 3. Graphic explanation of Mistermind.
***Note that students do not see this explanation.*

was required in the Wood and Stewart study (1987). Students who wasted moves by contradicting or duplicating information given previously would be unable to meet the challenge. The goals and accomplishments were recorded on a poster in the classroom. The goals also added motivational interest, and they allowed the experimenter and students to identify students who needed assistance. Student peers then knew who to help. The experimenters and participating teachers also interviewed students regarding their strategies. The interviews were recorded on both video and audio tapes.

Conspicuous Strategy and Constructivist Strategy Groups: Grolier's Encyclopedia

Hardware Requirements

The New Grolier Electronic Encyclopedia (1993), requires an IBM-compatible computer running DOS version 3.0 or later, 512K of RAM, a CD ROM drive, and a VGA monitor.

Instructional Content

Both the Conspicuous Strategy and the Constructivist Strategy groups used the New Grolier Electronic Encyclopedia CD ROM to check the accuracy of facts on experimenter designed worksheets. Students were presented with statements that were either true or false, arguments containing evidence that was either true or false, or opposing viewpoints. To determine the accuracy of facts, the students were directed to underline the key words in a statement or argument, and then to search the Grolier's Encyclopedia.

The Conspicuous Strategy students were taught a strategy on how to respond to inaccurate facts. For example, the Conspicuous Strategy students received the prompt in Figure 4. The Constructivist Strategy students did not receive this prompt. The Constructivist students were instructed to "...decide whether the viewpoints agree or disagree. Use the CD Rom to figure out who is right."

Classroom Procedures

During the class period, students from their respective treatments worked in pairs on the Grolier's Encyclopedia CD Rom. The students were placed in pairs of low and high performing students. All students were given instruction in how to efficiently search the encyclopedia.

Conspicuous Strategy and Constructivist Strategy Groups: Varied Practice in Reasoning

Both treatment groups received varied practice in reasoning for the final two weeks of the study. The activities included: class discussions; computer games; logic problems; debates on issues important to the local community; determining unstated assumptions

Your paragraphs will be written in regular paragraph form, like this:

(Name) and (Name) disagree. (Name) claims ___________.

On the other hand, (Name) claims that ___________.

According to Grolier's, (Name) is wrong. Grolier's indicates that ___________.

Figure 4. Conspicuous strategy prompt for responding to inaccurate facts.

CONTRASTING VIEWPOINTS

Joe's viewpoint:

We should not allow the Grateful Dead to perform in our town. Whenever the Grateful Dead come to our town, their fans come from all over. These fans are the most despicable people. If we keep the Grateful Dead out of town, we can also keep their fans out of town.

David's viewpoint:

The Grateful Dead concerts are an asset for our town. The Grateful Dead promoters make large donations to the city to offset the costs of cleaning up after the concerts and to compensate for the extra burden on social services (for example, food stamps, clothing, etc.). Many businesses make a lot of money when the Grateful Dead come to town. Our Police Department stated that the Grateful Dead and their fans are far less destructive than the college football fans.

Figure 5. Example of varied practice in reasoning exercise.

from letters to the editor of the local newspaper; and using data from Consumer Reports (1994) to analyze products.

For example, one debate was about having the Grateful Dead, a world renowned band, perform in the local civic arena. The town council and newspapers debate the pros and cons for weeks before and after the event (see Figure 5). Students worked on the following exercise individually, and then participated in a class discussion led by the classroom teacher or experimenters.

Measures

To evaluate mastery of the conspicuous strategy, we used the test of syllogistic reasoning developed for the Grossen and Carnine study (1990). To evaluate flexibility in reasoning, we used the New Jersey Test of Reasoning. Each of these measures are described below.

Mastery Measure: Syllogistic Reasoning Test

We used the 13-problem pencil-and-paper test (coefficient alpha = .86) used in the Grossen and Carnine study (1990). The test contained two problem formats that had been practiced in the instruction. Eight problems involved forming a conclusion from each of the eight basic forms of evidence. Five problems required subjects to critique given arguments (see Figure 6 for example problems). Critiquing arguments with incorrect conclusions re-

The following problem includes forming conclusions subscale.

You know that All B's are K's.
All N's are K's.

What else do you know?
A. All N's are B's.
B. All B's are N's.
C. Some B's are N's.
D. No B's are N's.
E. No definite conclusion.

The correct answer is E.

The following problem involves critiquing a given conclusion.

Here is George's evidence: All animals are heterotrophic.
All animals are eukaryotic.
Here is George's conclusion: All heterotrophes are eukaryotic.
Check George's conclusion. Is George's conclusion correct?________________
If not, what is the correct conclusion? ________________________________

George's conclusion is not correct. The correct conclusion is "some heterotrophes are eukaryotic."

Figure 6. Sample items of the Syllogistic Reasoning test.

quired two responses (judging the conclusion incorrect and giving the correct conclusion); critiquing correct conclusions required only one response (agreement).

Flexibility Measure: The New Jersey Test of Reasoning

The 50-item New Jersey Test of Reasoning was used to assess flexibility in reasoning. The Institute for the Advancement of Philosophy for Children developed the test to assess the effectiveness of Philosophy for Children. The internal consistency reliability (coefficient alpha) was 0.91. An effort was made in creating the test "to construct a taxonomy in terms of the skills needed to perform the operations in the discipline of logic, both of the formal and informal variety, insofar as these relate to linguistic usage....The taxonomy appears to be reasonably representative of the domain, and the items selected for the New Jersey Test appear to be reasonably representative of the taxonomy" (Shipman, 1983, p. 14). Figure 7 illustrates these sample items.

For the pretest, we randomly selected 30 items from the original test. We investigated the discriminability of items using the procedures described by Nunnally (1964). Specifically, we identified the top 25% and the bottom 25% of all students in terms of total test scores. Next, for each test item, we determined the percent of students in the top quarter and the bottom quarter who selected the correct answer for the item. Finally, we subtracted this percentage of the bottom quarter who responded correctly from the percentage of the top quarter. The result showed that the differences in the percentages for all items were positive numbers, which means that responses to each item were consistent with the results of the total test. Nunnally (1964) proposed that a desired difference should be 20 percentage points or more. Twenty-eight out of the thirty items (93% of the items) met this criteria with the differences ranging from 23 to 77, averaging 48. The percentage points of the remaining two items were both 18.

Results

Comparison of Experimental Groups

The means and standard deviations of the Conspicuous Strategy group and the Constructivist group on the pretests and the posttests are shown in Table 2. Prior to treatment, these subjects had been matched in pairs and randomly assigned to form equivalent groups. After treatment, we conducted t-tests on the pretest scores of the remaining subjects to ensure the groups were still equivalent. There were no significant differences (Oral Reading Fluency, t(56) = .52; Syllogistic Reasoning Test, t(62) = .80; New Jersey Test, t(62) = 1.02).

We performed a multivariate analysis of variance (MANOVA) on the posttests to compare the effects of the Conspicuous Strategy instruction and the Constructivist instruction. Results of the MANOVA showed a significant treatment difference favoring the Conspicuous Strategy group (Wilk's lambda = .88, F(2, 61) = 4.3, $p < .05$). Univariate F-tests indicated that this difference was significant and favored the Conspicuous Strategy group on both the Syllogistic Reasoning Test (F[1, 62] = 8.22, $p < .01$) and the New Jersey Test (F[1, 62] = 4.53, $p < .05$).

Overall Quasi-Experimental Effects

We conducted a multivariate analysis of covariance (MANCOVA) on the two posttest measures for the entire sample using both

- Jim remarked, "All bees are things that fly." But it doesn't follow," replied Donna, "that all things that fly are bees."
  - a. Donna's wrong: from what Jim said, it does follow that all things that fly are bees.
  - b. Donna's right: from what Jim said, it doesn't follow that all things that fly are bees.
  - c. Donna's wrong: nothing follows from what Jim said.

- Steve learned in school that people born in the United States are Americans. When he was told that Alice was not born in the United States, he concluded, "Alice is not American."
  - a. You cannot tell if Steve is right or wrong.
  - b. Steve has to be right.
  - c. Steve has to be wrong.

- The band leader said, "Carl, you are out of step." Carl wasn't sure what the band leader meant, because
  - a. he wondered whether "out of step" meant not marching in time with the music.
  - b. he wondered whether "out of step" meant not marching in time with the rest of the band.
  - c. Steve XX has to be wrong.

Figure 7. Sample items of the New Jersey Test of Reasoning.

Table 2. Means and Standard Deviations of the Group for Experimental Comparisons

Treatments	New Jersey Pretest (Full Score = 30)	New Jersey Posttest (Full Score = 50)	Syllogistic Reasoning Pretest (Full Score = 18)	Syllogistic Reasoning Posttest (Full Score = 18)
Conspicuous Strategy (n = 37)	20.4 (5.9)	37.2 (8.2)	6.4 (2.2)	9.1 (4.7)
Constructivist (n = 27)	18.8 (6.1)	32.2 (10.6)	5.9 (3.3)	5.9 (3.7)

*Standard Deviations are in parentheses.

pretests as covariates. The means and standard deviations for the Conspicuous Strategy, Constructivist, and Control groups are presented in Table 3. The Wilk's lambda of .83 and the associated F value of 5.13 with the degrees of freedom 4 and 212 indicated that the probability of exceeding the F value would be .001. (As Wilks' lambda approaches 1, the groups approach equivalence.) This result showed that overall, treatment effects were significantly different.

To determine which group(s) was (were) significantly different from the other group(s), we performed a MANCOVA for each combination of the groups. The MANCOVA with the Conspicuous Strategy group and the Control group showed a significant group difference favoring the Conspicuous Strategy group (Wilk's lambda = .36, F[2, 80] = 26.8, $p < .001$). Univariate F-tests indicated that significant differences occurred on both the Syllogistic Reasoning Test (F[1, 81] = 15.3, $p < .001$) and the New Jersey Test (F[1, 81] = 10.2, $p < .01$), and favored the Conspicuous Strategy Group.

A second MANCOVA comparing the Constructivist group and the Control group

Table 3. Means and Standard Deviations of the Groups for the Quasi-Experimental Comparisons

Treatments	New Jersey Pretest (Full Score = 30)	New Jersey Posttest (Full Score = 50)	Syllogistic Reasoning Pretest (Full Score = 18)	Syllogistic Reasoning Posttest (Full Score = 18)
Conspicuous Strategy (n = 62)	20.0 (5.7)	35.6 (8.7)	6.1 (2.2)	8.5 (4.2)
Constructivist (n = 27)	18.8 (6.1)	32.2 (10.6)	5.9 (3.3)	5.9 (3.7)
Control (n = 23)	22.1 (4.2)	33.7 (9.9)	7.3 (3.3)	6.7 (3.6)

*Standard Deviations are in parentheses.

showed no significant group differences (Wilk's lambda = .97, F[2, 45] = .70).

The Performance of Special Education Students

Special education students in the conspicuous strategy treatment did not seem to perform as well on the syllogistic reasoning test as the special education students in the Grossen and Carnine study (1990). Age differences may explain this in part. Many special education students included in the present study were younger than the students in the Grossen and Carnine study. However, not one special education student in the present study achieved even the mean score of the group in the Grossen and Carnine study, indicating that age may not fully explain the poorer performance of the present group.

A more important variable affecting student performance may have been the scheduling of classes in the present study. Students in the present study were on a "block" schedule, where they were scheduled to receive instruction on Monday, Wednesday, and Friday. When the interruptions of snow days, special conference days, holidays, attendance, and other special events are considered, students often received even less frequent instruction. On the other hand, students in the Grossen and Carnine study (1990) were scheduled to receive instruction every day. One experimenter who participated in both studies sensed that much learning momentum was lost in the block schedule. Students in the block schedule seemed to require more total time to complete the computer program than was required in the daily schedule (m = 13 hours). Most of the seventh grade special education students did not even complete the conspicuous strategy instructional program in a full semester. Further research should experimentally evaluate the effects of daily versus less frequent instruction on mastery and on overall time required to complete a course objective.

To evaluate the effects of the conspicuous strategy treatment on special education students, we compared the mean scores of the special education students who had completed or nearly completed the conspicuous strategy instructional program (n = 15) with the control group and with the constructivist group. There were no significant differences in the means of the special education conspicuous strategy group (m = 5.5, sd = 1.8) and the control group on the syllogistic reasoning test (t[36] = 1.19). Neither were the mean scores of the special education conspicuous strategy group on the New Jersey test (m = 30.0, sd = 8.7) significantly different from those of the control group (t[36] = 1.48). The scores of the special education conspicuous strategy group also did not differ significantly from those of the constructivist group on the syllogistic reasoning test (t[40] = .39) nor on the New Jersey test (t[40] = .97).

Discussion

Instruction that taught a conspicuous strategy for syllogistic reasoning was compared with a constructivist intervention that did not teach syllogistic reasoning. Both groups received varied practice on problems requiring reasoning in different contexts and forms. The varied practice activities can be viewed as the kind of classroom activity that constructivists often recommend. The varied practice activities involved discussion, computer games, logic problems, and other activities, all of which required the use of good reasoning strategies. Prior to working on these varied activities, the conspicuous strategy treatment learned via computer a well-defined strategy for reasoning. The constructivist treatment did not learn one well-defined strategy, but rather were required to invent their own strategies as they worked on two computer games that required students to eliminate alternatives to win. Teachers frequently questioned students in the constructivist treatment regarding their strategies and encouraged them to work strategically. Students shared their strategies with one another and modified their strategies as the challenges and the games changed. Interviews indicated that students in the constructivist treatment had in fact worked strategically. The strategies the students reported using to solve the computer games were varied and depended on the specific task or challenge they were attempting to meet. None of the students described a strategy resembling syllogistic reasoning.

Results on the mastery test (syllogistic reasoning) indicated that the computer-delivered instruction in syllogistic reasoning resulted in significantly better scores for the conspicuous strategy group. The strategies that the constructivist group invented did not seem to transfer to syllogisms. Their scores were significantly lower than those achieved by the conspicuous strategy group.

The New Jersey Test of Reasoning was used to determine whether the conspicuous strategy group could apply the well-defined strategy it had learned with flexibility in solving a wide range of reasoning problems in ill-defined contexts. The New Jersey Test of Reasoning samples a wide range of reasoning problem types that were derived from a complete taxonomy of reasoning. None of the problems were in forms the students had practiced during instruction.

Scores of the conspicuous strategy group were significantly higher on the flexibility measure (the New Jersey Test), indicating that they were able to apply the single strategy they had learned with sufficient flexibility to solve general reasoning problems. The constructivist group that had invented various, task-specific strategies did not seem to generalize them to solving general reasoning problems.

The well-defined strategy that the conspicuous strategy group learned was syllogistic reasoning. Since Aristotle's original argument that syllogistic reasoning was fundamental to all deductive reasoning, philosophers have differed concerning its relevance to practical reasoning tasks. The most common argument against syllogistic reasoning is that it does not resemble the strategies that people develop more naturally for solving reasoning problems (Cheng, Holyoak, Nisbett, & Oliver, 1986; Holyoak & Nisbett, 1988). In this study, constructivist subjects did not report nor demonstrate strategies resembling syllogistic reasoning. Observations of and interviews with the constructivist subjects provided no evidence that syllogistic reasoning strategies were developing. The observable strategies that students invented were very specific to the tasks they were completing. The strategies even changed within games as the challenge changed, though the game objective was still the same.

However, one should ask whether the strategies that develop naturally are the best strategies to teach. Grossen (1992) has argued that rather than develop reasoning models that describe the way people naturally reason, our task as educators should be to develop models that will help people reason more effectively. Grossen, Romance, and Vitale (in press) concluded in their review of the research on science instruction that the strategies that are worth teaching are those that are widely applicable. Grossen (1992) illustrated the broad applicability of syllogistic reasoning in a range of practical contexts.

The significantly better performance of the conspicuous strategy group on the flexibility measure (the New Jersey Test of Reasoning) seems to indicate that the students who learned the well-defined, but widely applicable strategy of syllogistic reasoning and applied it to varied contexts during instruction, achieved more generalized improvement in their reasoning ability, than the students who did not learn the well-defined strategy. Quasi-experimental comparisons with a control group indicated that the reasoning performance of the conspicuous strategy group improved significantly more than the control group, while the performance of the constructivist group did not.

Further research should explore the limits of the applicability of syllogistic reasoning as it was taught in the conspicuous strategy treatment. Additional applications should provide even wider ranging contexts in content-specific problem forms, such as designing a scientific experiment or evaluating the alternative solutions to a current social problem. More studies are also needed to compare the effects of other forms of constructivist interventions on reasoning and compare these with the effects of the conspicuous strategy instruction as designed in this study.

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Argumentative Writing: Making Something Complex Accessible

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ALTHOUGH PERSUASIVE/ARGUMENTATIVE WRITING IS VIEWED AS COGNITIVELY DEMANDING, difficult to teach well, and generally, the most difficult mode of writing for students to master (Crowhurst, 1990, 1991; Knudson, 1991; McCann, 1989; Moffett, 1968), instruction within this mode should be treated as important. The inability of many students to produce acceptable argumentative writing is disconcerting when one considers the importance that has been placed upon both persuasive/argumentative oration and composition within Western culture. Connor, Gorman, and Vahapassi (1987) proclaimed that persuasive/argumentative composition "lies at the very heart of education in general and of education in particular disciplines" (p. 181). Clearly, if an important goal of education is the preparation of citizens who are able to think and reflect critically and independently upon a variety of issues, then instruction in persuasive/argumentative composition should be emphasized for all students, not only the brightest and most capable. Nevertheless, to date, we are still at an early stage in our attempt to effectively teach the persuasive/argumentative mode to both regular and special education students.

Defining Persuasive/Argumentative Writing

Persuasive writing or argumentative writing — writing that takes a stand and argues for a certain view — has been termed differently by different authors. A recent National Assessment of Educational Progress (NAEP) (Applebee, Langer, & Mullis, 1986a, 1986b) used the term "persuasive writing." "Opinion essay" was used by Bereiter and Scardamalia (1982). Crowhurst (1990) stated that a writer engages in persuasive writing when he/she takes a point of view and supports that view with emotional or logical reasons. A study conducted in 14 countries by the International Association for the Evaluation of Educational Achievement (IEA) (Connor et al., 1987) used the terms "persuasive" and "argumentative" synonymously.

Much of the literature applicable to this mode of writing uses the terms "persuasive" and "argumentative" interchangeably. One may, however, note that sometimes a distinction is made between the terms "argument" and "persuasion." Rottenberg (1985) delineates the essence of the distinction but also emphasizes the artificial nature of that distinction in real-life arguments about social policy: "Argument, according to most authorities, gives primary importance to logical appeals. Persuasion introduces the element of ethical and emotional appeals. The difference is one of emphasis" (p. 9).

Results from Major Assessments

National assessments have repeatedly illuminated glaring deficits in the area of persuasive/argumentative writing. Results of the NAEP (Applebee, et al., 1986a; Applebee, Langer, Jenkins, Mullis, & Foertsch, 1990) indicate that performance on persuasive writing tasks is poor. The 1986 NAEP indicated that between 9% and 36% of 11th-grade students, across 11 tasks of varying difficulty, wrote persuasively at the unsatisfactory level, and less than 3% wrote elaborated papers. Fewer than one third of the students wrote at the adequate level or better. At all grade levels (4, 8, and 11) a high percentage of unsatisfactory responses were evident, whereas a low percentage of responses were judged as adequate. On the task considered the easiest, 25% of 4th graders, 36% of 8th graders, and 28% of 11th graders were able to produce writing at an adequate level or better. On the most difficult task, adequate performance ranged from 4% at Grade 4 to 15% at Grade 11.

On the 1990 NAEP, student performance in persuasive writing was somewhat better than on the 1986 assessment but was, nevertheless, still poor. Across Grades 4 to 12, 65% to 88% of the students gave minimal or better responses to tasks requiring them to convince others of a particular point of view, while only 27% to 36% gave adequate or better responses. On tasks that required refutation of an opposing view, 46% to 69% wrote minimal or better responses and 14% to 36% wrote elaborated responses. Knudson (in press) hypothesized that improvement on the 1990 NAEP may have been due to the greater difficulty of the 1986 prompts. Knudson stated: "The 1986 prompts require students to both take a stand and refute the opposition in the same essay while the 1990 prompts require students to take a stand in one essay and refute the opposition in a separate essay" (p. 6).

The Difficulty of Persuasive/ Argumentative Writing

Persuasive/Argumentative writing has often been viewed as the most difficult mode of writing (Crowhurst, 1978; McCann, 1989; Prater & Padia, 1983; Pringle & Freedman, 1985) and as too cognitively demanding for young writers (Moffett, 1968). Traditionally, as McCann points out, elementary school curricula have avoided argumentative and persuasive writing tasks, and secondary school composition texts typically reserve argument until the last 2 years of high school. Even college composition courses tend to reserve argument until the end of the course. Persuasive writing's position at the end of courses and instructional sequences indicates that argument is deemed complex and is highly regarded.

Several researchers have identified specific difficulties encountered by students in writing argument. Inadequate content development is one problem. Persuasive compositions have often been found to be shorter than narrative compositions (Crowhurst, 1980; Freedman & Pringle, 1984; Hidi & Hildyard, 1981). In addition, students commonly do not support their viewpoints (Applebee, et al., 1986b). A second weakness associated with students' written argument is a lack of knowledge of the structure of the argumentative/persuasive task (Freedman & Pringle, 1984).

A weakness in the persuasive writing of young students has been inappropriate style (e.g., the use of inappropriate or informal language and the overuse of immature connectors such as "also," "so," and "but" (Crowhurst, 1987). Writing within the narrative format or writing conversational dialogues instead of persuasively has been a particular problem for elementary and middle school students (Crowhurst, 1983). Furthermore, the failure to develop compositions adequately and to provide necessary elaboration (Crowhurst, 1991; Knudson, 1991, 1992b, in press) has been not only a difficulty for younger students but also has been problematic for students at (a) the high school level (Knudson, 1992a, 1992b; McCann, 1989), and (b) for weaker writers at the college level (Cooper, et al., 1984). Persuasive compositions that are not adequately developed obviously fall short in their attempt to promote a given viewpoint. Knudson (1991), in reviewing results from an instructional intervention, stated that even though student writing often took the "form" of an argument, it was not logically developed enough to be convincing.

In terms of students with learning disabilities (LD), research concerning the teaching of and students' response to persuasive/argumentative tasks is virtually nonexistent; however, given the difficulty average to above-average writers have with the persuasive/argumentative mode, the difficulty students with LD may experience is obvious. The difficulty students with LD encounter in other forms of written expression has been well documented. As just one example, Newcomer and Barenbaum's (1991) review of a decade of research concerning the composing abilities of students with LD illustrates the substantial difficulties experienced by writers with LD.

Insights from Previous Research

Even though effective instructional strategies have been identified with respect to teaching narrative and expository writing to students with varying abilities (e.g., Englert, Raphael, Fear, & Anderson, 1988; Graham, Harris, MacArthur, & Schwartz, 1991; Scardamalia & Bereiter, 1986), research has not been as successful in determining the effectiveness of instructional strategies in teaching persuasive/argumentative writing (Knudson, 1991, 1992a, 1992b; McCann, 1989).

Currently, the research base relating to potentially efficacious ways to teach persuasive/argumentative writing to elementary and secondary students of varying abilities is extremely limited. Although a small amount of research has provided insights regarding potentially effective ways of teaching persuasive/argumentative writing to students within regular education settings, research concerning the teaching of persuasive/argumentative writing to students with LD is, as previously alluded to, very limited. A review of the literature reveals only one small-scale study (Graham & Harris, 1989) that has dealt with the teaching of argumentative writing to students with LD. Encouraging results of the Graham and Harris study are summarized below.

Graham and Harris' Study

The hypothetical feasibility of successfully teaching persuasive/argumentative writing strategies to students with LD may be strengthened by evidence accumulated from composition studies, conducted during the past 10 to 15 years, evaluating the response of students with LD to other modes of written language (e.g., Englert & Raphael, 1989; Englert, Raphael, Anderson, Anthony, & Stevens, 1991; Graham et al., 1991).

Given the documented success of strategy instruction in improving narrative (see Graham et al., 1991) and expository (e.g., Englert et al., 1988) writing, one may hypothesize that this general form of training may also enhance the instruction of students with LD in persuasive/argumentative writing. However, only one study has specifically addressed the teaching of argumentative writing to students with LD (Graham & Harris, 1989). In the Graham and Harris study, three 6th-grade students with LD were taught techniques for argumentative writing via self-instructional strategy training. Training effects were investigated using a multiple-baseline-across-subjects design. Posttraining results showed that essays contained two to three times as many functional elements as baseline essays. At the same time, the essays were judged to be coherent and meaningful. Eighty percent of the essays after training contained the basic parts of an essay, in contrast to only 10% of the baseline essays. In addition, essays written following training were judged to be qualitatively superior to baseline essays. Other positive results were that students maintained gains they had demonstrated immediately following the intervention. Following the intervention, students also demonstrated a generalization of writing skills across not only settings (generalized to resource room) but were somewhat successful in generalizing writing skills to a different mode (narrative), even though the focus of the intervention had been exclusively on strategies for writing argumentative essays. Furthermore, following a single, post-intervention training session involving a few simple strategies to prompt inclusion of story elements, students were quite successful in demonstrating transfer or generalization to the writing of stories. The findings of this study concur with the viewpoint of Harris (1982): that self-instructional strategy training may be a promising means of providing positive effects as well as maintenance and generalization. Fully determining whether strategy instruction may be successful in teaching persuasive/argumentative writing, however, may only be accomplished through the findings of continued research. Nevertheless, a similarity may be noted across studies of modes other than argumentative when reviewing strategies that have been successful in increasing the general writing ability of students with LD (e.g., Graham et al., 1991). Explicit strategies employed in such interventions have successfully enabled the teacher to guide the students from a dependent to an independent level of thinking about and approaching writing tasks.

Current Research at the University of Oregon in Argumentative Writing

Given the paucity of instructional research in persuasive/argumentative writing, researchers at the University of Oregon have deemed it important that research be conducted in this area. A primary objective of some recent research at the university has been to determine potentially effective ways to teach the difficult, but important, argumentative mode to students with varying writing abilities. At the present time, the results of this research, using a curriculum designed by Gleason (1994) to teach argumentative writing, are being analyzed. The curriculum used in this research is the primary focus of this article rather than any particular results of the investigations conducted, due to the fact that the effects of the instructional curriculum are currently being compiled.

A Curriculum Developed to Teach Argumentative Writing

The present article summarizes basic features incorporated in the aforementioned curriculum designed to teach writing skills to students with a range of writing abilities, including students with LD. The curriculum, *Instruction in Argumentative Essays* (IAE), (Gleason, 1994) has been implemented twice: (a) in a six-week Master's thesis study that involved middle-school students with LD (Koller, 1994) and (b) in a six-week dissertation study conducted with students with LD in grades 9-12 (the data is currently being analyzed). In both interventions, two instructional treatments were employed, the basic and the expanded. Both the basic and the expanded treatments emphasized the structural elements of (a) purpose of argument (to justify one's viewpoint), (b) audience one is writing for, (c) title, (d) opinion, (e) reasons supporting opinion, (f) elaboration of reasons, and (g) conclusion. Beyond the basic structural elements common to both treatments, the expanded treatment emphasized explicit instruction in teaching students to recognize opposing viewpoints (viewpoints on the opposite side of the argument) and how to respond to opposing viewpoints.

Fundamental Instructional Features of the IAE Curriculum

The instructional features of the IAE curriculum enhance the potential accessibility of the difficult argumentative mode for lower achieving writers. The IAE curriculum incorporates five foundational principles considered important in appropriate instructional design (Dixon, Carnine, & Kameenui, 1992) as follows: (a) big ideas, (b)conspicuous strategy instruction, (c) scaffolded instruction, (d) integration, and (e) systematic review. Basic definitions of these foundational principles are given below:

1. Big Ideas: Big ideas are concepts or principles within a given instructional or content area that strongly facilitate students' ability to generalize and transfer their learning to varied situations.
2. Conspicuous Strategy Instruction: Conspicuous strategy instruction involves the teaching of specific steps or actions (strategies) necessary for achieving learning goals.
3. Scaffolded Instruction: Scaffolded instruction, often termed scaffolding, is the support provided to students during the developmental stages of learning before they can perform independently.
4. Integration: Integration may consist of (a) the connection or linking of previous learning to later learning or (b) the linking of one type of learning or content with another. For example, after students read and comprehend passages containing a particular structure, they apply the structure to the writing of short essays.
5. Systematic Review: Systematic review consists of review that is (a) distributed over time, (b) cumulative, and (c) varied.

When the IAE curriculum was applied to the two interventions (Master's thesis and dissertation study), the foundational design principles incorporated in the curriculum were provided throughout the instructional lessons within the expanded and the basic treatments. A brief discussion of how the principles were incorporated into the instructional treatments follows.

Big Idea

The instructional curriculum for both treatments included text structure as the "big idea." Briefly, text structure is how a given piece of writing is organized. For example, instructional activities in the area of writing often emphasize text features specific to a given mode (e.g., narrative, expository, and persuasive/argumentative) of writing as different from another mode. Students in this study were taught that argumentative essays have unique features that may be organized in a certain manner (e.g., title, opinion, reasons, elaboration of reasons, and conclusion).

Strategy Instruction

The second design principle, conspicuous strategy instruction, was included in both experimental treatments through the teaching of a general writing strategy. The general writing strategy reflected a process approach to writing (i.e., use of planning, drafting, and revision). The efficacy of teaching students specific strategies to assist their planning, drafting, and revision of text is well documented (e.g., Englert et al., 1991; Englert & Raphael, 1989; Graham & Harris, 1989; Graham et al., 1991). Using the general writing strategy, students were taught what to do at each stage in the writing process and were instructed in how the stages link together. Dixon et al. (1992) emphasize that strategies, in order to be maximally effective, be neither too broad nor too narrow and defined. When the students learned the textual elements or the structure of argumentative essays, it appeared that the students' knowledge of basic argumentative text structure provided them with a strategy that facilitated their learning and that was, in fact, neither too narrow nor too broad. For example, learning the textual elements that comprise the organizational structure of essays helped students' planning and subsequent composition.

The basic strategy students learned was termed "Writing an Essay." The simple "Writing an Essay" strategy taught the students to prepare themselves for writing by (a) either reading a short passage(s) on a given issue and/or brainstorming with other students, (b) planning their compositions in the instructed fashion on blue paper, (c) drafting their essays on yellow, (d) reviewing their essay with a checklist (by self, with teacher, or with partner), (e) revising their essays, and (f) writing their final drafts on white.

Scaffolded Instruction

The third design principle utilized in both treatments was scaffolded instruction. Scaffolded instruction is particularly critical in teaching students with LD who have difficulty with traditional methods of writing instruction. Several researchers have documented the deficiencies of traditional writing instruction in meeting the needs of developing writers, especially lower achieving students and writers with LD. Typically, traditional writing instruction has provided minimal teacher modeling and guidance and has provided minimal and inadequate practice (e.g., Christenson, Thurlow, Ysseldyke, & McVicar, 1989; Englert, 1992; Hillocks, 1984). Examples of scaffolded instruction are tips, strategies, dialogue, questions, and cues that may be used by both the teacher and peers to bridge the gap between a learner's current skills and his/her attempted goal. Another form of scaffolding is procedural facilitation in which prompts are embedded in instructional materials to cue strategy application (e.g., Englert et al., 1991; Englert & Raphael, 1989; Graham & Harris, 1989). Three of the four dimensions of scaffolding reviewed by Dickson, Chard, and Simmons (1992) were employed in the research applying the IAE curriculum: (a) individual, (b) material, and (c) task scaffolding.

In addition to the three aforementioned dimensions, Dickson, et al. (1992) identify content scaffolding as another type of scaffolding. In describing a reading/writing curriculum developed as a part of their research, Dickson et al. (1992) discuss the objective of content scaffolding as follows: "The objective of content scaffolding is for students to learn new strategies or concepts in initially easier content" (p. 13). For example, a reading curriculum could scaffold content by presenting shorter and less complex stories before presenting novels. Because our investigations (Master's thesis and dissertation studies) in argumentative writing did not vary the complexity of essay content to any significant extent, this dimension of scaffolding does not appear particularly relevant to the discussion of the IAE Curriculum.

Individual Dimension

First, scaffolding occurred along an individual dimension. This type of scaffolding "refers to support provided by another individual (teacher or peer), to link the learner with new information and tasks" (Dickson et al., 1992, p. 13). Each new skill and strategy introduced during the interventions (e.g., planning, drafting, and revision) was scaffolded on the individual level through the following phases: (a) the teacher modeled the new skill or strategy, (b) the teacher led students through the application of the skill or strategy until they appeared firm, (c) students worked in small groups or pairs to perform the skill or strategy (optional phase), and (d) students finally practiced the skill or strategy independently.

The second phase, the "lead" phase of individual scaffolding, is critical in skill acquisition. Students should not apply the skill or strategy independently until they can do so with relative facility. The third phase of individual scaffolding, the "peer" phase, provides students with additional support, guidance, and practice before they are required to write independently. Often it is advantageous to pair a higher performing student with a lower performing student, enabling each student to perform successfully. During the fourth phase of individual scaffolding (independent), scaffolding may be dropped as soon as the students perform the skill or strategy with good accuracy.

Materials Scaffolding

The second type of scaffolding in the IAE curriculum is materials scaffolding. Materials scaffolding is a form of procedural facilitation in that prompts within the materials themselves cue strategy application. Materials used during instruction provide (a) color cues (e.g., blue for planning and yellow for drafting and revision) and (b) cues on planning sheets that prompt students to recall the specific features of argumentative writing (e.g., fixed positions on planning sheets for elements such as opinion, reasons, elaboration, and conclusion). As students acquire skills, prompting provided on the planning sheets fades (e.g., removal of word cues such as opinion, reasons, and conclusion). Two levels (fully prompted and less prompted) of scaffolded planning sheets from the expanded treatment are shown in Figures 1 and 2. As students acquire more skill, lines provided on planning sheets also may be faded.

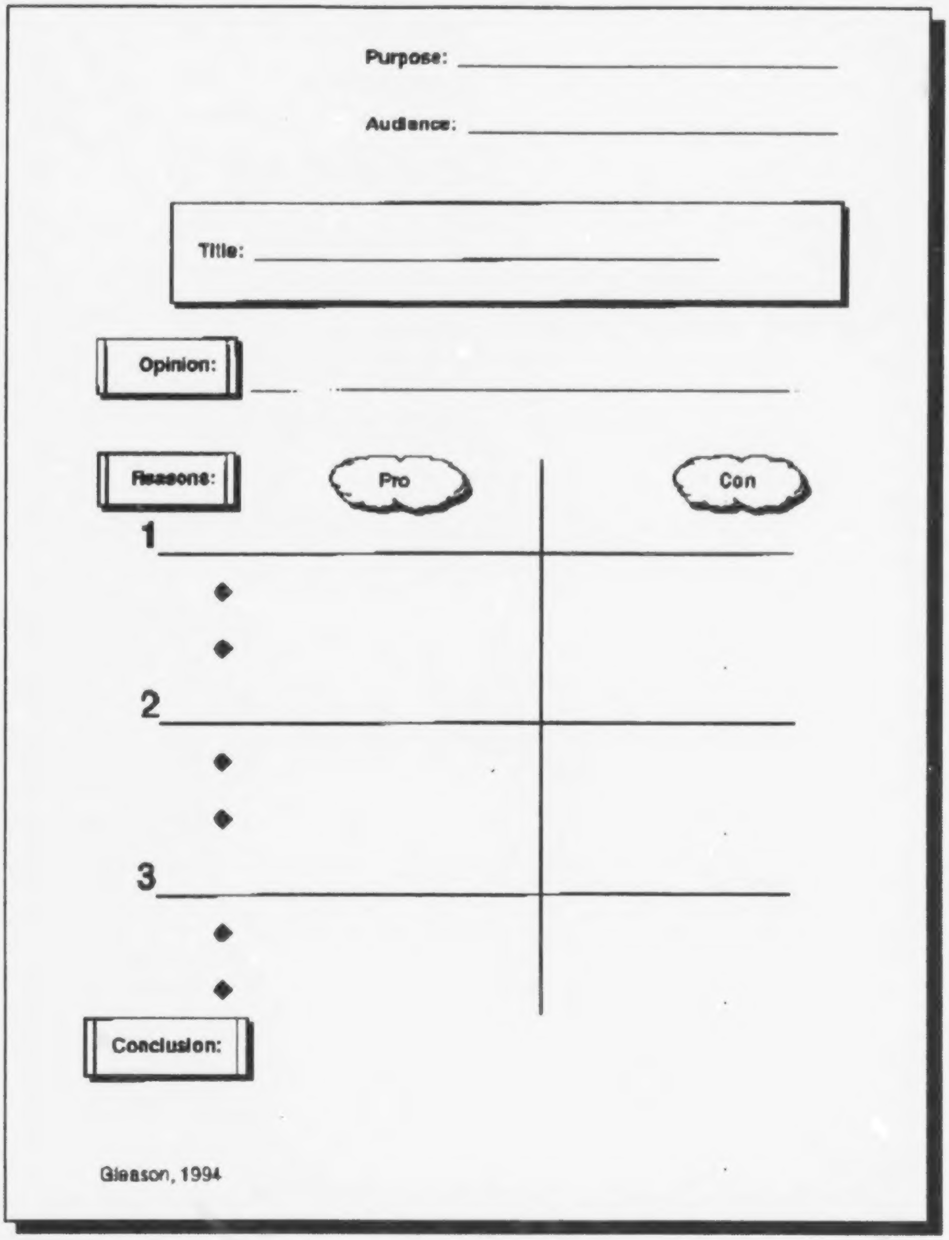
In general, materials scaffolding or prompting fades as student proficiency increases (e.g., Englert & Raphael, 1989). However, due to the short duration of the Master's thesis and dissertation interventions, it was not realistic to completely fade the planning prompt sheets. For example, although word cues were removed from the planning sheets during the latter part of the interventions, lines were still provided in their original positions to prompt inclusion of the basic structural elements such as title, opinion, reasons, and elaboration. Furthermore, no attempt was made to fade the color scaffolding (i.e., blue for planning, yellow for first draft, and white for final draft) because of color's integral role in all instructional as well as assessment phases.

Task Scaffolding

The third and final type of instructional scaffolding employed in the interventions was task scaffolding. Task scaffolding involves the appropriate sequencing of tasks with easier tasks laying the foundation for ensuing more involved tasks. For example, students first learned to identify the text or structural features of argumentative essays in prewritten passages and became familiar with the features over time before attempting to include those features in their own compositions.

Integration

The fourth foundational design principle, integration, took place throughout the interventions. Previously learned skills were linked to newly introduced skills by way of careful example selection and review. For example, the earlier skill of text or structural element identification and the following skill of planning an essay were linked. In both interventions, the teachers first modeled and then led students through the identification of text elements using two prewritten essays on the same topic but each taking opposite viewpoints (e.g., pro-hunting and con-hunting). After the modeling and leading of text- or structural-element identification, the teacher modeled the planning process using the same topic (e.g., hunting). Because the students were already familiar with the issue and the basic structure of an argument (opinion, rea-



Purpose:

Audience:

Title:

Opinion:

Reasons:

Pro

Con

1
◆
◆

2
◆
◆

3
◆
◆

Conclusion:

Gleason, 1994

Figure 1. Scaffolded planning sheet: Fully prompted.

sons, elaboration, and conclusion), they were better able to see the link between the basic structure (text elements) of an argument and the need to include this basic structure (text elements) when planning a new essay. Such careful integration occurred as each new step of the writing process was taught; previously learned skills were carefully integrated with newly taught skills. Figure 3 provides an overview of task integration for the first two skills (text-element identification and planning) taught in the basic treatment.

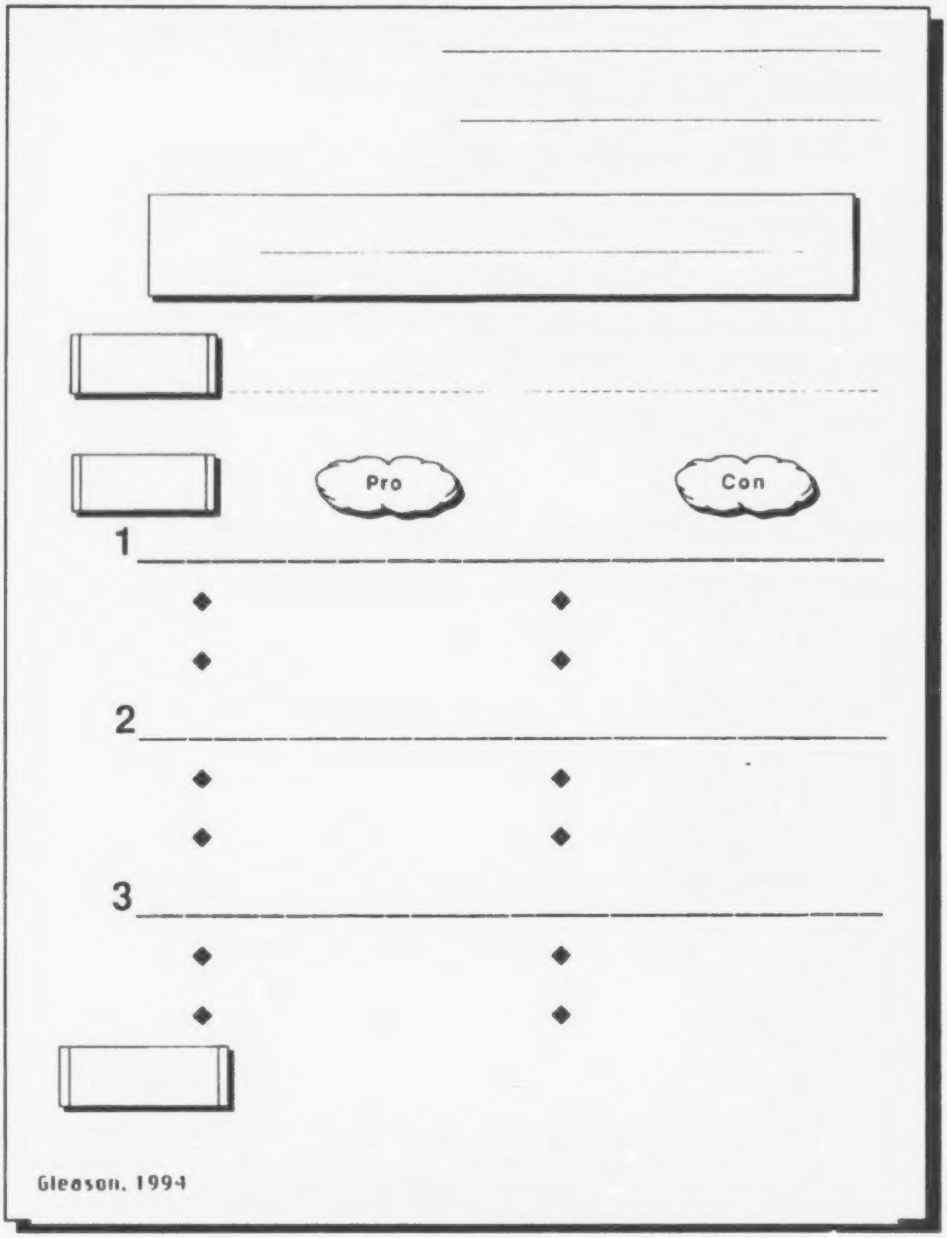


Figure 2. Scaffolded planning sheet: Less prompted.

Systematic Review

The fifth and final foundational design principle emphasized in the instructional interventions employed in both treatments was systematic review. Each skill learned during the writing process was reviewed throughout the lessons. Review schedules were similar for both treatments; however, the expanded treatment was taught and reviewed the additional elements of (a) recognition of opposing views and (b) response to opposing views. Figure 3 describes the foundational skills

Lesson Number	Identification of Elements	Skill Number	Planning Essay
1	Using essays on both sides of hunting issue 1. Teacher models circling and labeling of elements on one side of issue. 2. Teacher leads same task on other side of issue. (Elements: Purpose, Audience, Title, Opinion, Reasons, and Conclusion)		
2		1.	Using hunting examples: Teacher models planning that incorporates elements.
3	Using essays on both sides of smoking issue: 1. Teacher leads students in circling and labeling elements on one side of issue. 2. Students perform same task independently on other side of issue.	1.	Using smoking examples: Teacher leads planning.
4	Using essays on both sides of juvenille punishment issue: 1. Teacher reminds students verbally of text elements as they read essays.	1.	Using juvenille punishment examples: Teacher leads planning.
5	Using essays on both sides of space travel issue: 1. Teacher and students review text elements. 2. Students read both essays without stopping to discuss elements.	1. 2.	Using space travel examples: Teacher leads planning on one side of issue. Students plan on other side of issue independently.

Figure 2. Linking two skills: Text element identification and planning.

taught and a review schedule for these skills for the basic treatment during the interventions.

Conclusion

The IAE curriculum is a concerted effort to provide lower achieving writers with carefully designed instruction that adheres to design principles we know are critical to student learning. When carefully taught, the curriculum enables students to become familiar with the basic structure of argumentative essays and to eventually construct argumentative essays independently. Empowering lower achieving students to write argumentative essays is important in that not only are writing skills increased but students also engage in reflective thought. Therefore, students learn to consider multiple rather than single viewpoints, a difficult skill for many students.

More important than the fact that students learn to write argumentative essays is the fact that when taught with the IAE curriculum, students engage in a writing process similar to that needed for other modes of writing as well as argumentative. Students learn fundamental strategies for planning before writing, careful drafting, checking drafts (with partners, by self, and with teacher — using an edit/revise checklist), and revising draft copies before finally producing their final essays. During our investigations, it was clearly evident that for many students this may have been one of their first experiences in applying careful planning, drafting, and revision strategies so necessary to effective writing.

Lesson Number	Skills Taught	Skills Reviewed
1	Identify text elements (Elements: Purpose, Audience, Title, Opinion, Reason, and Conclusion)	
2	Plan (all elements but elaboration)	Text Elements
3	Plan (all elements but elaboration)	Text Elements
4	Plan (all elements but elaboration)	Text Elements
5	Plan (all elements but elaboration)	Text Elements
6	Plan (reasons with elaboration)	Plan (elements besides elaboration)
7	Plan (reasons with elaboration) -Elaboration of Reasons is added as a new text element	Plan (elements besides elaboration)
8	Write rough draft (teacher models writing an entire essay; teacher next leads students in writing an entire essay)	Plan)all elements)
9	Write rough draft after planning, use of checklist to evaluate essay, revision of essays on yellow draft paper to meet taught features	Plan (all element) and writing of essay
10	Teacher leads students through General Writing Strategy (for writing essay): (a) get ready for planning by reading and/or brainstorming, (b) plan on blue, (c) write on yellow, (d) edit using checklist (by self, with teacher, or with partner), (e) revise on yellow, and (f) write final copy on white paper	Plan and write rough draft, editing using checklist, and revision of draft on yellow paper
11	Teacher again leads students through General Writing Strategy (See lesson -10 above)	Plan and write rough draft, editing using checklist, revision of draft on yellow paper, and completion of final copy on white
12	Teacher monitors students as they implement the general strategy for writing an essay	General writing strategy, plan write rough draft, edit and revise, write final copy

Figure 4. Foundational skills taught and review schedule for basic treatment condition.

The fact that lower achieving writers and writers with LD benefit from instruction in which complex tasks are first modeled, then led with careful teacher guidance, and further scaffolded (by peers or by teacher) until they become increasingly independent needs no recapitulation. Furthermore, unless lower achieving writers are exposed to instruction that incorporates basic design principles reviewed in this article and incorporated in the IAE curriculum, the gap between lower achieving and better achieving writers will only widen.

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Understanding Student Understanding

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"WRITING PERMITS US TO UNDERSTAND NOT ONLY THE WORLD BUT ALSO THE SELF. WE discover who we are by writing" (Lindemann, 1987, p. 7). As Lindemann so aptly noted, writing is a complex culmination of skills and knowledge that provides a unique reflection of our perspectives. How often have we as writers, researchers, and teachers written something we thought clean and polished, only to later return and reformulate the premises from which we operate. Our growth, our learning, and our experiences shape the way we write, and in turn, these shapers may quite possibly be seen in what we write.

In this article, we present a series of scoring systems that use student problem-solving as an indicator of student understanding in content areas. Our eventual goal is to develop a method for "scaling" student responses, however, we are constrained by a number of different perspectives that must be presented before describing the specific systems. We first present an overview and establish a context for judging student "understanding" and then provide examples in three areas of understanding, requiring students to (a) make evaluative arguments, (b) arrange information to arrive at conclusions and explain why, and (c) use information to make predictions. Although not an exhaustive list of possibilities to reflect "understanding" these three tasks potentially are easily operationalized in a low inference manner.

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The Context

While educational assessment literature is replete with calls for performance-based measures, few if any studies have been conducted on strategies for scoring that performance. Most of the articles on performance-based assessments are conceptual, describing and suggesting strategies that "sound" good (have face validity), but have unknown psychometric underpinnings.

We begin with the assumption that to understand student understanding, the assessment system likely needs to be a production task. Although multiple-choice tests may be used to make summative judgments about students' knowledge (Bennett & Ward, 1993), we believe such measures fail to adequately reflect the manner in which students use their knowledge to make judgments, develop arguments, or arrive at conclusions.

We also argue that written problem-solving essays may be the most easy and straightforward way to capture student understanding, though this assertion must be validated. At the very least, we believe written responses to problem-solving tasks are "authentic," representing a critical skill for success in middle and high schools. But for authenticity to accrue, "it must be intimately understood by teachers, students, and parents, so that it can help them strive for and achieve the learning goals it embodies" (Darling-Hammond, 1994, p. 25).

The first step to embedding assessment within systemic understanding of student understanding, is to develop a technically adequate system: one that is reliable and valid. The problem, however, is twofold. There must be emphasis on determining the relative importance of consistency and generalizability (reliability) or the consequences from decision-making (validity). But there also must be emphasis on establishing an empirical and evidential basis for specific performance measurement systems. In this article, we approach technical adequacy as minimally requiring that reliability be documented, especialy interjudge reliability, for any assessment that requires judgments and particularly for high stakes decisions. "Comparability becomes important when claims are made that students are meeting common performance standards or when results are used for external purposes such as certification or admission to college" (Linn, 1994, p. 12).

Yet what we have found in our reviews of the literature is an incredible paucity of such research. For example, in a recent keyword search of scores of articles listed in the ERIC databases (and using "performance assessment"), we found only a handful of articles in which empirical data were reported. And with these few studies, the results have not been very encouraging: "Ironically, the reliability of performance estimates in many alternative assessment systems has been low. For example, the Vermont portfolio assessment program reported very low consistency in the interjudge scoring of the writing and math samples; coefficients ranged from .33 to .43 (Koretz, Stecher, Klein, & McCaffrey, 1994). In the Oregon State-wide Assessments, there were few exact agreements on 6 writing traits (ideas-content, organization, voice, word choice, sentence fluency, and conventions); in general fewer than 50% of the writing samples were given the same exact score by more than one reader (and this was true across all the grades of 3, 5, 8, and 11) (Oregon Department of Education Technical Report: 1989-1992)" (Tindal & Nolet, in press). And, such consistency is not just a function of the raters, but may result from task incomparability. Shavelson, Baxter, & Gao (1993) suggest that a range of 10-23 performance tasks in science is needed to obtain a stable estimate of the students' performance.

One final problem with the current research on performance assessment is the lack of attention to the constructs underlying performance. Presently, the major concern is with the tasks only, not the requisite interactive intellectual or learning operations that underlie performance. For example, most critiques of traditional measurement systems limit the debate to a comparison between multiple choice versus constructed responses (Bennett & Ward, 1993). Yet, even within constructed responses, such variations in task format exist that it is difficult to make comparisons among different studies or to consider discussion of intellectual or learning operations. Therefore, we have focused on three learning and performance tasks, all of which use a written response within a problem-solving context: Evaluation (students make a choice and defend it), explanation (students explain why an outcome has occurred), and prediction (students use information to devise an outcome). These three intellectual operations were first described by Roid and Haladyna (1982) within the context of test development and later researched by Nolet and Tindal (in press, 1994) in the context of student production responses.

With these two issues in mind — the technical adequacy of a performance measure and the format of the learning operation (as performance in response to a "deeper" construct) — we sought to establish the beginnings of a scoring system flexible enough that teachers could use it within the classroom, yet steadfast enough to be psychometrically rigorous.

When we began, five premises focused our efforts, much like the criteria noted by Deno (1985) in the original development of basic skills Curriculum-Based Measurement (CBM):

1. The system had to be capable of generating alternate forms so a time-series measurement system could be generated. In the area of content assessment, then, not only did the response have to be generic, but the information upon which it was based had to be broadly defined in its domain. This requirement is probably the most important and is what distinguishes the system we describe in this article from other forms of criterion-referenced measurements (which are usually topically bound and incapable of more than one alternate form).

2. The measures had to be technically adequate, meaning reliable (consistent, stable, repeatable) and valid (related to other measures and useful in the classroom so the teachers could use the information to improve instruction) or, as Frederiksen & Collins (1989) describe it, the measures had to "systemically valid").

3. The system had to be fast and easy to use, making it possible to use frequently (again, emphasizing the time-series nature of the data base).

4. The scoring system had to be low inference with little reference to cognitive events or complex constructs that emerge only within a constructivistic framework.

5. The scoring had to include a response that was instructionally relevant, regardless of the authenticity of it outside the school.

With these five premises, we developed a flowchart for making judgments about a student's content area writing, with three options available for anchoring the measure to an interactive learning task (which the teacher could model and instruct in directly): Evaluation, prediction, and explanation. Although the construct validity of such differentiations may yet to be established (Tindal, Rebar, Nolet, & McCollum, in press), we felt that the most productive way to proceed was by treating them separately.

In each of the flow charts, the lowest value response is one that is not in response to the prompt, and although indicative of something, it is uncertain what it reflects. Otherwise, the scoring systems reflect slightly different nuances of argumentation. In evaluation, we emphasize multiple arguments both for the choice and against the nonchoice (Toulmin, 1958). In the prediction flowchart, we focus on logical outcome derivatives. And in the explanation scoring system, because we have only an ending and arguments can begin anywhere, we concentrate on their sequential delivery.

In the end, we believe the flowcharts are a way to begin understanding student understanding that does not dissect the whole, yet retains integrity to judgments with the least amount of inference.

Scoring Evaluation Essay Responses

Evaluation is the analysis of a problem using appropriate criteria to make a judgment. The primary consideration when examining evaluation essay responses is to determine whether the student has made a choice between several prompted options by applying appropriate criteria to judge those choices. Implied in this statement are three constructs crucial to understanding the form of the evaluation essays. First, multiple options must be available to students from which a choice can be made. These options must be presented to the student via the prompt. If only one option is available or if all of the prompted information points strongly to one choice, students will merely be summarizing information on one concept. The prompt must force a choice, not shape it, so the students can display their knowledge about the concept being taught.

Secondly, students must choose the option they consider the best path to follow. To do this the students must establish criteria for analyzing the available options. These criteria reflect previous knowledge and principles, concepts, and facts that were presented to them through class content and curriculum. These criteria will be used to justify their choice. In essence, necessary criteria cannot be in place if the student doesn't know the content materials.

Finally, students must present their decision and explain their rationale. Ideally, student presentations should come as arguments that overtly weigh and compare possible choices using content derived criteria. Students must use content knowledge, make decisions through choosing criteria and a course of action, write an effective argument for their position, and support that choice by presenting evidence constructed through use of the criteria. This exercise becomes an overt display of their content knowledge and learning.

The scoring system presented here reflects two dimensions of this process that are inherently necessary to the task: the position the student has taken and the student's use of the facts, concepts, and principles to support that position. By careful analysis along these two dimensions, three scores may be obtained. Students may be scored on their use of correct and incorrect facts as evidence for their position, and they may also be scored for the quality of their overall decision and argument. The student evaluation answer presented in this article has been examined and scored using the flowcharted scoring system appearing below (see Figure 1). The critical features of evaluation scoring are: (a) presentation of knowledge through the use of facts, concepts, and principles as criteria for judgment, (b) student presentation of a choice in response to the prompt, and (c) the presentation of a rationale for that choice, consisting of multiple facts supporting the choice and refuting other, unchosen possibilities.

Presentation of Knowledge: Fact Scores

Facts form the foundation for good evaluation essays. Items of content knowledge from the class or from previous experience are used as criteria to weigh choices and to derive a "best" choice from among multiple presented options. Students must examine the prompted information, process it in the light of their knowledge about the topic, make a choice, and present reasons for their choice by describing how it fits their criteria. At each step the use of known facts, concepts, and principles is critical to the development of an effective argument for their choice. This use of facts, concepts, and principles may be scored separately from the quality of the argument. Facts are most commonly presented in the development of this argument. Also refer-

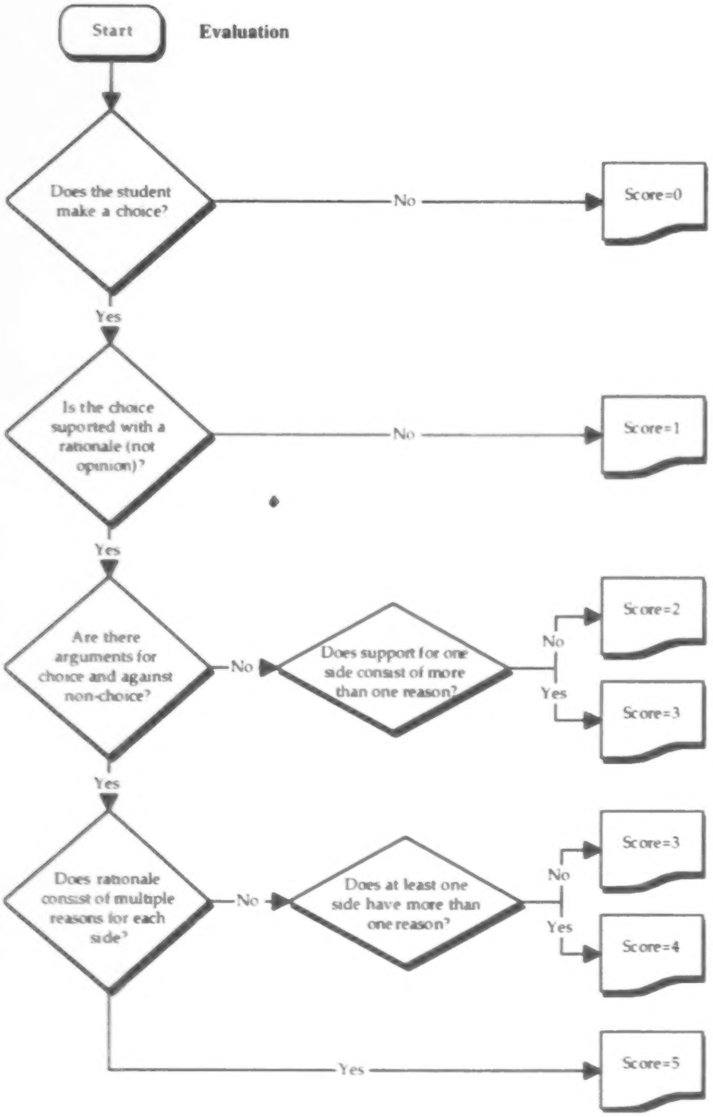
Start
Evaluation
Does the student make a choice?
No
Score=0
Yes
Is the choice suported with a rationale (not opinion)?
No
Score=1
Yes
Are there arguments for choice and against non-choice?
No
Does support for one side consist of more than one reason?
No
Score=2
Yes
Score=3
Yes
Does rationale consist of multiple reasons for each side?
No
Does at least one side have more than one reason?
No
Score=3
Yes
Score=4
Yes
Score=5

Figure 1. Evaluation flowchart.

ence may be made to concepts and principles. Facts represent only one example or instance. Concepts and principles represent complex constructs using multiple facts. In the case of student essays, they are rarely developed beyond a name or brief description. Because of this, for scoring purposes, concepts and principles are considered facts.

For example, in a social studies prompt students may be asked to choose a course of action for controlling immigration in the United States. The options may be quotas, strict health screening, or education requirements. There is no absolutely correct choice from among these options. Students must decide which choice would best fulfill the task according to their knowledge, then they must defend that choice. The student may choose quotas and present instances of previously used quota systems (facts). The student may

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also refer to the frontier thesis (principle) in the answer when describing a need for room to grow. Either the former facts or latter principle can be counted as facts in support of the student's choice. In scoring there are two kinds of facts that may be used: correct and incorrect facts.

Correct Facts

Correct facts (FC) accurately reflect course content and correct previous knowledge. These items will usually be listed on the content planning worksheet (see Figure 2) or they will be nearly synonymous to content listed thereon. However, students can occasionally throw the scorer a curve by inclusion of correct previous knowledge that was unanticipated. Scorers should use their best judgment in deciding how such information is scored. Decisions on how to score such anomalous information should be arrived at before scoring. Note that student opinions are not considered facts and therefore they are not scored as either facts correct or facts incorrect. If a student argues that their choice was made "because it looked good" or "because it was right," those statements do not add evidence to the argument and therefore do not count as facts in support of the argument.

Incorrect Facts

Incorrect facts (FI) are defined simply as inaccurate information. FI may represent mislearning, guessing, simple mistakes, or a genuine lack of understanding. FI will be considered in scoring only if they were used as building blocks for the logical argument in the qualitative portion of the score. FI used in this manner are not scored as FC but merely considered as a logical building block the student used to strengthen the framework of the logical argument. FI can also give a teacher valuable insights on individual and global mislearning or misunderstandings. If several students mention the same incorrect facts, then it's a pretty sure bet that something was miscommunicated in the class: the students could have misunderstood the materials or task, the teacher or text could have presented an error, or perhaps a small group of students shared wrong information amongst themselves. By monitoring the level and type of incorrect facts that occur, a teacher can carefully monitor the accuracy of the learning taking place within the classroom.

Summary of Fact Scoring

The scores for FC and FI are mere tallies of the number of facts used in the essay. The tallies present limited information about the factual content of the student's essay. Consideration of facts is necessary in nearly all steps of evaluation scoring because facts are intertwined in the whole of the argument being presented. However, to assess the quality of the answer the framework of the argument must be examined. This overall view of the student's essay is examined when deriving the qualitative score.

Presentation of Choice: The Qualitative Score

The qualitative score (Q-score) is considered to be a direct reflection of the logical framework of the answer. Q-scores are derived from students' choices and how those choices are supported by the facts. Students must include some statement presenting their position on the prompted task, and there must be a framework of facts, possibly made up of both FC and FI, that is used to support that position. As stated earlier, the critical features of evaluation scoring are: (a) presentation of knowledge through the use of facts, concepts, and principles as criteria for judgment, (b) student presentation of a choice in response to the prompt, and (c) the presentation of a rationale for that choice, consisting of multiple facts supporting the choice and refuting other, unchosen possibilities. We have examined how facts appear in a student's answer. After such facts are counted, their use to create a logical argument of support can be examined.

The Statement of Choice

The first step in analysis of the Q-score is to find a statement indicating that a choice has a choice of taking no position because none of the offered choices are clear-cut.

As an example of a hierarchical presentation, if students are prompted to choose where people will settle from among several landforms, the student could write, "Most of the people would settle near the river but some of the people would settle in the mountains. Others would settle in the forest." This statement addresses several landforms, implying a hierarchy evident in the adjectives "most" and "some."

When students choose not to accept a single position it presents scoring problems. The student may say, "None of the choices are best." This, in fact, may be a clear position statement. Whether it is or not depends upon the support the student gives that statement. There are three ways in which this may be in evidence. First, the prompt itself may have been too vague or presented too much evidence for all of the choices (over or under prompted) making the taking of a single position too exclusive. Or perhaps the student has an excellent understanding of the topic and has over-analyzed the situation, realizing that taking a position in one way will go against other presented evidence. Both of these positions will be supported by a great deal of evidence. Finally, the student may even create a new choice or category of their own to facilitate mixed information. In any of these cases, the essay should be scored as containing a clear statement of choice. If the student uses such a statement and offers little evidence in support of that position, it may be because the student doesn't understand the prompt or is confused by it. That student's answer should be treated as having no clear position offered and scored accordingly.

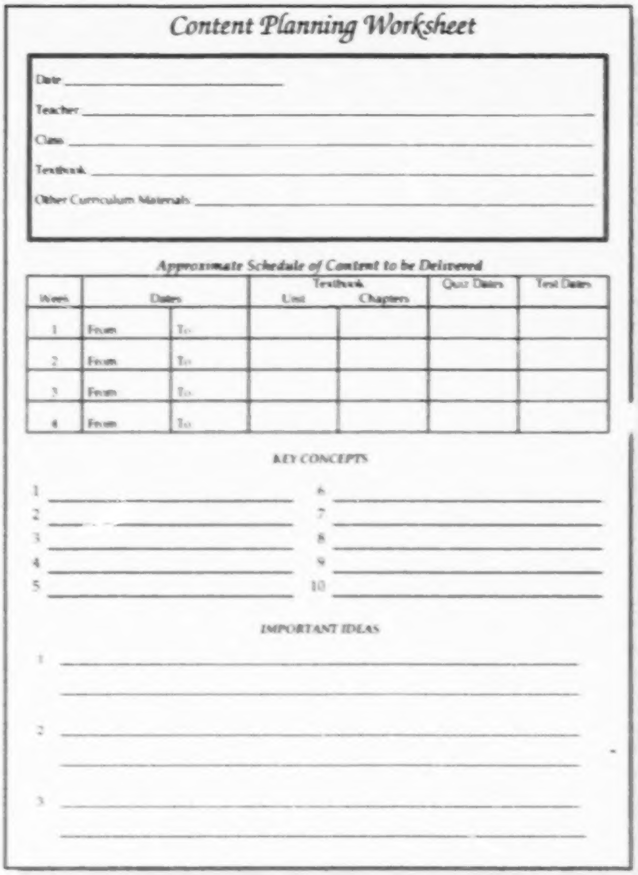
Facts as Supporting Evidence

The student's rationale for making a particular choice is analyzed by examining the facts used to either support the statement of choice or lower the value of other choices. Scoring is accomplished by a simple count of the facts employed and whether or not other choices were considered. For the purposes of the Q-score it doesn't matter whether FI or FC are used in support of the student's choice. What we are examining here is how those facts support the position.

The first decision to be made is whether or not the student addressed alternative choices. The assumption is that addressing both or all sides of an issue or decision creates the strongest argument. Therefore, students must present their reasons for their choice and their reasons for not choosing something else. A fact count of both sides of the issue is performed. If the choice is clear but the student presented only a single fact in support of one side of the issue, the Q-score is 2. If the choice is clear and the student offered one fact in support of both sides or multiple facts in support of one side, then the score is 3. If multiple facts were offered on one side of an argument that addresses both sides, then the score is 4. And ideally, if the student offers multiple facts in support of both sides of an issue, the Q-score is 5.

Summary of Evaluation Scoring

In scoring student evaluation essays there are three scores that may be derived. The first scores, FC and FI reflect correct and incorrect facts, concepts, and principles that are presented in the essay. The scores are merely tallies of these facts. Correct facts are defined as facts that accurately reflect course content. Incorrect facts may be defined as facts that represent mislearning or misunderstanding and as such they should be monitored. Following tally of these scores, the Q-score is derived by examining the essay for a statement of choice that presents the student's position. The rationale consisting of these supporting facts is then examined for how the facts support the choice made, how other choices are refuted, and how a body of evidence is built through the use of multiple facts. What follows is an example of a student answer accompanied by an analyses of that



Content Planning Worksheet

Date ____

Teacher ____

Class ____

Textbook ____

Other Curriculum Materials ____

Approximate Schedule of Content to be Delivered

Week	Dates		Textbook Unit	Chapters	Quiz Dates	Test Dates
1	From	To				
2	From	To				
3	From	To				
4	From	To				

KEY CONCEPTS

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____
7 ____
8 ____
9 ____
10 ____

IMPORTANT IDEAS

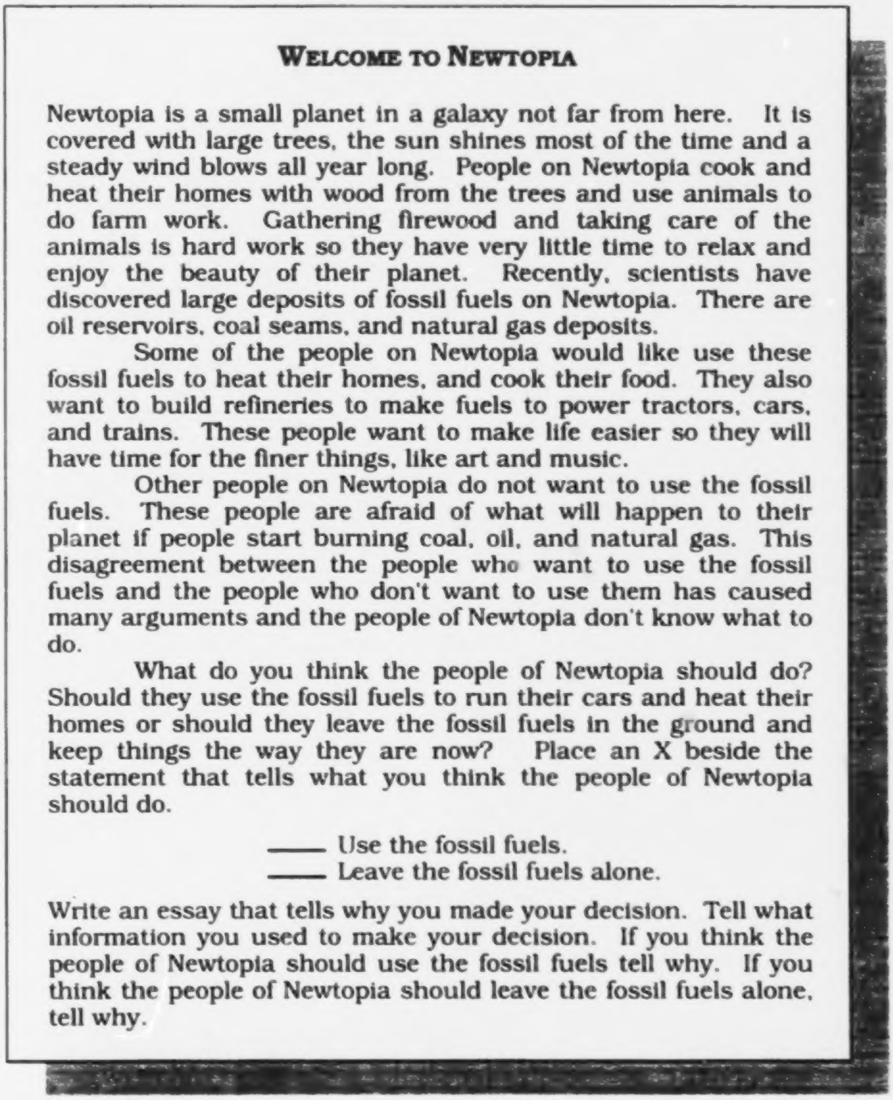
1 ____
2 ____
3 ____

Figure 2. Content Planning Worksheet (Tindal, Nolet, Blake, 1992).

been made between prompted alternatives. That is, the student must take a position. This statement should be clear and the position taken definite. For example, students can write, "I think people should use fossil fuels," or, "People shouldn't use fossil fuels." The statement of choice becomes the hinge point of the student's evaluation of the problem. If the statement of choice is clear, the student immediately scores one point for inclusion of the statement. If the choice is unclear or if no choice is presented, then no points are awarded for taking a position and further criteria are used to derive the score. This feature corresponds to Toulmin's notion of a proposition (1958).

Because of the nature of evaluation prompts, two unprompted choices may be found while scoring: definite decisions that no choice is best, or that all of the choices are good. These possible choices may make the answer seem equivocated or vague. Such answers can occur because the student does not understand the task or has no knowledge of the prompted situation, or because the student truly feels that is the best course and so does not want to commit fully to one of the offered choices. The former situation yields an answer that is vague. The latter situation will yield a clearly directed answer that is supported by facts. This type of answer can appear as (a) a presentation of a hierarchy of several choices, or (b) as answer, demonstrating this method of scoring the evaluative and factual properties of student essays. The example presented herein was chosen as representative of many of the issues that can arise during scoring.

In the following example we present a student's answer that is representative of a high-end response to the prompt. The prompt (see Figure 3) asks the student to choose whether or not fossil fuels will be used. Following the student's response is an explanation of how that answer was examined and scored using the flowcharted system. The primary focus while using this scoring system was to accurately assess how students thought about the prompted situation using content knowledge as criteria for judgment of the situation. We examine the student's decisions



WELCOME TO NEWTOPIA

Newtopia is a small planet in a galaxy not far from here. It is covered with large trees, the sun shines most of the time and a steady wind blows all year long. People on Newtopia cook and heat their homes with wood from the trees and use animals to do farm work. Gathering firewood and taking care of the animals is hard work so they have very little time to relax and enjoy the beauty of their planet. Recently, scientists have discovered large deposits of fossil fuels on Newtopia. There are oil reservoirs, coal seams, and natural gas deposits.

Some of the people on Newtopia would like use these fossil fuels to heat their homes, and cook their food. They also want to build refineries to make fuels to power tractors, cars, and trains. These people want to make life easier so they will have time for the finer things, like art and music.

Other people on Newtopia do not want to use the fossil fuels. These people are afraid of what will happen to their planet if people start burning coal, oil, and natural gas. This disagreement between the people who want to use the fossil fuels and the people who don't want to use them has caused many arguments and the people of Newtopia don't know what to do.

What do you think the people of Newtopia should do? Should they use the fossil fuels to run their cars and heat their homes or should they leave the fossil fuels in the ground and keep things the way they are now? Place an X beside the statement that tells what you think the people of Newtopia should do.

____ Use the fossil fuels.
____ Leave the fossil fuels alone.

Write an essay that tells why you made your decision. Tell what information you used to make your decision. If you think the people of Newtopia should use the fossil fuels tell why. If you think the people of Newtopia should leave the fossil fuels alone, tell why.

Figure 3. Prompt for Newtopia.

SIXTH GRADE RESPONSES ON THE USE OF FOSSIL FUELS

USE FOSSIL FUELS

- Fossil fuels make life easier because of the capacity to do more work
- There are ways to use fossil fuels wisely and carefully (i.e., conservation)
- Trees may run out if they are over-harvested
- It is a waste not to use fossil fuels
- Fossil fuels may be easy and cheap to develop

LEAVE FOSSIL FUELS ALONE

- Fossil fuels are non-renewable resources
- Getting and using fossil fuels can cause pollution (i.e., acid precipitation, oil spills)
- There are good alternatives to fossil fuels available
- Getting fossil fuels may pose health risks (i.e., black lung, cancer)

Figure 4. Facts for and against the use of fossil fuels.

based upon presentation of a choice and the facts, concepts, and principles used to support that choice.

Prior to scoring the student essays, scorers examined the course content and listed many of the facts they felt the students would present in their answers. These facts are presented in Figure 4. Occasionally, students would present facts that had not been previously listed. It was left to individual scorers to judge whether the facts were properly used or correct. In this manner, high inter-rater reliability was assured, yet the scoring system was allowed to remain flexible enough to address unique situations and interpretations.

Student Sample: Jesse's Answer

I think the people on Newtopia should use the fossil fuels, so the can heat houses, or make tractors or cars so the have transportation around the planet. What are the going to do in the ground mite as use the more than waste the fossil fuel. even though the fossil fuels wil make polution.

Student Sample: Analysis of Jesse's Answer

A statement of choice is clearly presented: *I think the people on Newtopia should use the fossil fuels.* The answer contains three facts that address two sides of the issue. Two facts are presented for the chosen use of fossil fuels: heating houses and making "tractors or cars so the have transportation." Heating homes is treated as one fact separate from using fossil fuels for transportation because it is a totally different application of those fuels, addressing needs for shelter. A third facts "though the fossil fuels wil make polution" addresses the counter argument.

Because a counter argument is presented that considers the reasons against the choice, the effectiveness of the argument is enhanced. In scoring it could be assumed that the wording of that fact, if more legible, would suggest that rather than wasting the fuels by leaving them in the ground, the people of Newtopia may as well use them even though they may pollute the environment.

Thus, it can be determined that Jesse's answer presents a choice that is supported by a rationale of three facts that address multiple sides of the issue at hand. Because of this, Jesse's answer receives a score of four on qualitative measures and three on the facts presented, or: Q=4, FC=3, FI=0.

It should be remembered that this scoring system reflects the content of the course and how it is used by the students as criteria for judging between choices in a prompted situation. This means that, given a well crafted prompt, the students' knowledge of course content and their fluency with that knowledge become the sole criteria for scoring. The scorers subjective views of the answers, the students themselves, the spelling, and even the penmanship, are minimized by careful adherence to the intellectual operation and how it is reflected in the concerns listed on the flowchart.

Scoring Explanation Answers

Explanation of a prompted event requires students to use information about a concept or principle by working backward to the events that may have occurred to create the prompted situation. Students must see and understand the prompted condition, use their knowledge of course content to discover possible antecedent conditions that may have brought about that condition, and then they must use their content knowledge to explaining how those antecedent conditions relate to the prompted situation. To answer an explanation prompt, the students must present this information as a list or sequence of events that are carefully linked together between the initial condition and the prompted situation. This operation can be scored by careful attention to how well the events are related to the prompt and linked together, by counting the number of events or steps that are listed (the fullness of the explanation), and by noting the accuracy of the listed events.

In explanation scoring, student answers are examined and scored using the flowcharted scoring system appearing below (see Figure 5). The critical features addressed in explanation scoring are: (a) the link between the answer and the prompt, (b) the number of events mentioned by the student, (c) the sequencing of mentioned events, and (d) the accuracy of the events listed.

The first level of questioning in the scoring system is whether or not the student's answer is an attempt to respond to the prompt. An answer such as "The moon is big," would not address a question about the American Revolution. Other answers of this nature would be "I don't know," or answers that had been left blank. Such answers would be assigned a score of 0.

Link

Many teachers ask their students to include a portion of the prompt in their answers. This reiteration of a portion of the prompt can be used to focus the student on the question being asked, to create a more coherent answer, and to force the student to begin writing. This is one way a student can link their answer to the prompt. The link is a demonstration of the student's understanding of the prompt itself. It is usually given at the beginning of an answer as an introduction to the students' thoughts, however, students may give a delayed link that can occur in the middle or even at the end of their answer. For example, in response to a question that requires the student to mention the four forces influencing flight, the student may give the link, "The four forces influencing flight are...," at the beginning of their response; "Drag and gravity are two forces that must be overcome in order to fly. This is accomplished by the two other

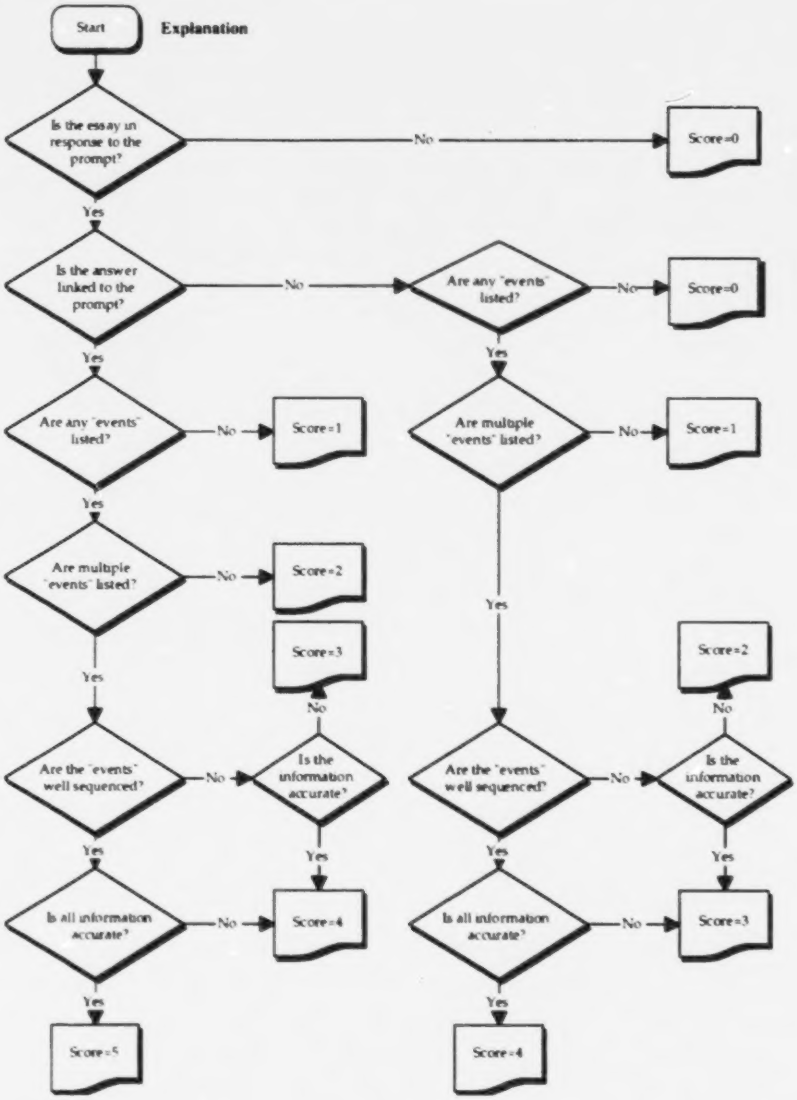

Start
Explanation
Is the essay in response to the prompt?
No
Score=0
Yes
Is the answer linked to the prompt?
No
Are any "events" listed?
No
Score=0
Yes
Are any "events" listed?
No
Score=1
Are multiple "events" listed?
No
Score=1
Yes
Are multiple "events" listed?
No
Score=2
Yes
Score=3
No
Are the "events" well sequenced?
No
Is the information accurate?
Yes
Score=2
No
Are the "events" well sequenced?
No
Is the information accurate?
Yes
Yes
Is all information accurate?
No
Score=4
Yes
Is all information accurate?
No
Score=3
Yes
Score=5
Yes
Score=4

Figure 5. Explanation flowchart.

forces that influence flight...," is an example of a middle link; and "So those are the four forces influencing flight," is an example of an end link. The link is a specific and topical reaction to the prompt that focuses and frames the students answer and relates it to the prompt. It should be explicit in nature.

Because it may be a reiteration of a portion of the prompt, an answer that is a mere reiteration is considered to at least be linked for scoring purposes. In response to a question about people who participated in the American Revolution, an answer such as, "Virginia" would not be considered linked, for it is unclear whether the student was writing about someone named Virginia, or the future state.

Events

Events are the concepts, key words, attributes, examples, logical steps, or ideas that have been listed on the content planning

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worksheet (refer to Figure 2) as part of the class curriculum. They are the individual steps, points of argument, or ideas a student mentions in the process of answering a prompt. The events are offered by the student as evidence for their position. This evidence becomes the scaffold of their argument or explanation. Acceptable events should be listed on the concept sheets by the teacher before scoring begins. Occasionally, however, a student may offer correct ideas or concepts of their own that were not listed on the worksheet. These ideas should be included as correct events. Incorrect concepts, attributes, examples, and ideas should not be scored as events although they should be monitored, for such incorrect notions may show where mislearning has occurred in the classroom.

When multiple scorers are working on a series of student answers, deviation from answers given on the worksheet should be discussed before scoring. For example, scorers decide a priori whether such deviations from the worksheet will be accepted or rejected, or whether scorers will use their best judgment on a case-by-case basis as scoring progresses. Scorers should also decide whether to score as multiple events any student generated ideas that are redundant or given more than once but from two different perspectives. For example, they must decide whether the statements, "Deserts have little food. Forests have much game for food," is scored as a synonymous rephrasing of a single event (food = one point), or as separate events (food + game = two points; or food in deserts + food in forests = two points). With prompts that give a student a wide range of possibilities for their answers, the former scoring would be preferable. In other cases the prompt may be narrow in focus so the latter scoring is necessary. Such scoring nuances must be discussed prior to scoring for the sake of inter-rater reliability and technical adequacy although some students will still occasionally surprise scorers with an obscure or highly unusual answer.

Sequencing

Sequencing is the listing of events by the student in a careful, step-by-step manner so all events, information, and their relationship to the prompt are clearly related to the reader. Sequencing also may be viewed as the linking of one event to another event in a careful chain of steps that is coherent to the reader.

For scoring purposes, the sequence is viewed as a logical progression from one event to the next. For example, in answer to a prompt asking students to explain the process of convection, a student may say, "Convection is the process that occurs when a fluid is heated. Heated fluid rises up, pushing the denser cool fluid out of the way. The cool fluid sinks down and is heated so it rises." This answer clearly relates the process of convection and each event naturally progresses from one step to the next. In contrast the student who writes, "The fluid heats up, rises, and then drops down," has given an answer that is poorly sequenced, for the step-by-step process of heating and cooling is not presented.

Accuracy

Often students will present events and ideas in their answers that are clearly in error or not related to the prompt. As mentioned previously, these non-events should not be scored but monitored by the teacher to prevent mislearning. There are cases, however, in which the events may be questionable as to their importance to the final outcome mentioned by the student. For example, in answer to the prompt on convection a student may say that the glass beaker that contains the fluid is cold. Though possibly true at some point in an experiment, it may not be pertinent to convection except as an initial condition and it has little bearing on convection outside of the experiment. Therefore, the statement may be accurate, but not important to the prompt, so it is not scored as an event.

Sometimes students will attempt to build arguments on opinions. For example, in answer to a prompt asking students to explain why a small country would adopt a democratic form of government, a student may offer, "Because it would make them happy." The student fails to present concrete events that would have led to the prompted outcome. Because these statements reflect opinion or belief systems that are not verifiable, they should be monitored to prevent mislearning, but they should not be scored as events.

Summary of Explanation Scoring

When scoring explanation answers, the link between the answer and the prompt, the number of events mentioned, the sequencing of those events, and their accuracy, are used to examine the quality of the answers. It is important to list concepts, key vocabulary, critical features, and facts on the content planning worksheet before scoring so focus can be maintained while scoring. When multiple scorers are involved in the task, several decisions must be made prior to scoring, such as what to do with deviations from the content planning worksheet or redundant events. Such a priori decisions will maintain inter-rater reliability and make scoring easier.

In the following example, we present a student's answer that is representative of a high-end response to the prompt. This example was only one of several short answer questions that appeared in the assessment. The question was, "What happens at night to make the top of your car wet when we go outside in the morning?"

The concept being assessed is *dew point*. The car is cooler than the surrounding air and the cool surface of the car causes the air immediately surrounding it to cool. This means that the water vapor in the air reaches dew point. As dew point is reached, the humidity must decrease so it condenses on the cold surface, or forms dew. The list of events below (see Figure 6) was created as a guide for scoring student responses to the science prompt. It is by no means complete, for answers that were analogous to these ideas were also acceptable.

Following the student's response is an explanation of how that answer was examined and scored using the flowcharted system. The primary focus while using this scoring system was to accurately assess how students thought about the prompted situation using content

RESPONSES ON THE DEW POINT SCIENCE PROMPT

Events listed among the answers offered by the students were:

- Change in dew point
- Relative humidity
- Condensation
- Water vapor turning to liquid
- The cool surface of the car
- Lower temperature

*Also acceptable were analogous statements such as, "The air near the car cools."

Figure 6. Facts used in scoring dew point question.

knowledge as criteria for judgment of the situation. We examine the student's decisions based upon presentation of a choice and the facts, concepts, and principles used to support that choice.

Student Sample: Mary's Answer

It wet because the moisture. The car is cold so It will cool the air around It. The processes is gas to liquid so the car gits wet

Analysis of Mary's Answer

The answer is an attempt to address the prompt (*It wet because*). It is clearly linked to the prompt through addressing the illustration (the car). There are two events listed, the car cooling the air immediately around it, and the process of gaseous water changing to liquid water. The link between the two is weak, however, degrading the sequence of the events. Optimally, Mary should have mentioned dew point being reached as the process she referred to. This would have strengthened the answer considerably. The events scored are accurate. Therefore, the score on this answer - well-linked, multiple events, poorly sequenced, and accurate — "gits" a 4.

Course content is reflected not only in the student's ability to use the names of the concepts but in the student's ability to understand the implications of the concepts. In the example above, Mary understood the process of condensation of water on cool surfaces as dew point is reached, even though she did not overtly say dew point had been reached. Her fluency with the concept is evident in the manner in which she explained the cooling of the air and the process of water turning from gas into liquid. Clearly, she understands.

Scoring Prediction Essays

A prediction response requires students to select a likely outcome given a set of antecedent circumstances. Students must use the prompted information to project a likely outcome by considering the facts, concepts, and principles they have acquired from course content and their own experiences. Students must see and understand the prompted condition, use their knowledge of course content to discover possible conditions or situations that could result from that initial condition, and then they must relay that information to the reader. As in answering explanation prompts, the students must present the information as a list or sequence of events that are carefully linked together between the prompted initial conditions and the ultimate outcome of the prediction. This operation can be scored by attention to how the events are related to the prompt and causally linked together, by counting the number of events or steps listed, and by noting the accuracy of the events and prediction.

The following answer has been examined using the flowcharted scoring system appearing in Figure 7. The structures of prediction prompts and essays are quite similar to the structures of explanation prompts and essays. Addressed in prediction scoring are: (a) the presence of a prediction, (b) whether the prediction is related to the prompt, (c) whether the prediction is linked causally to the prompt, (d) whether the outcome can be logically derived from the prompted situation, (e) the number of causal steps or events have been listed, and (f) whether all causal steps in the chain of events are clearly sequenced from prompt to predicted outcome.

Predictions are inextricably related to notions of cause and effect. The student is asked to tell what will happen (effect) given an initial condition (cause). Therefore, the first level of prediction scoring is to ask whether the student even offered a prediction in response to the prompt. This is, as per the section on explanation, an examination of whether or not the student addressed the prompt. An answer such as "The moon could blow up," clearly does not address a prediction prompt about the pollution in the Atlantic Ocean without a preposterous chain of events. As in explana-

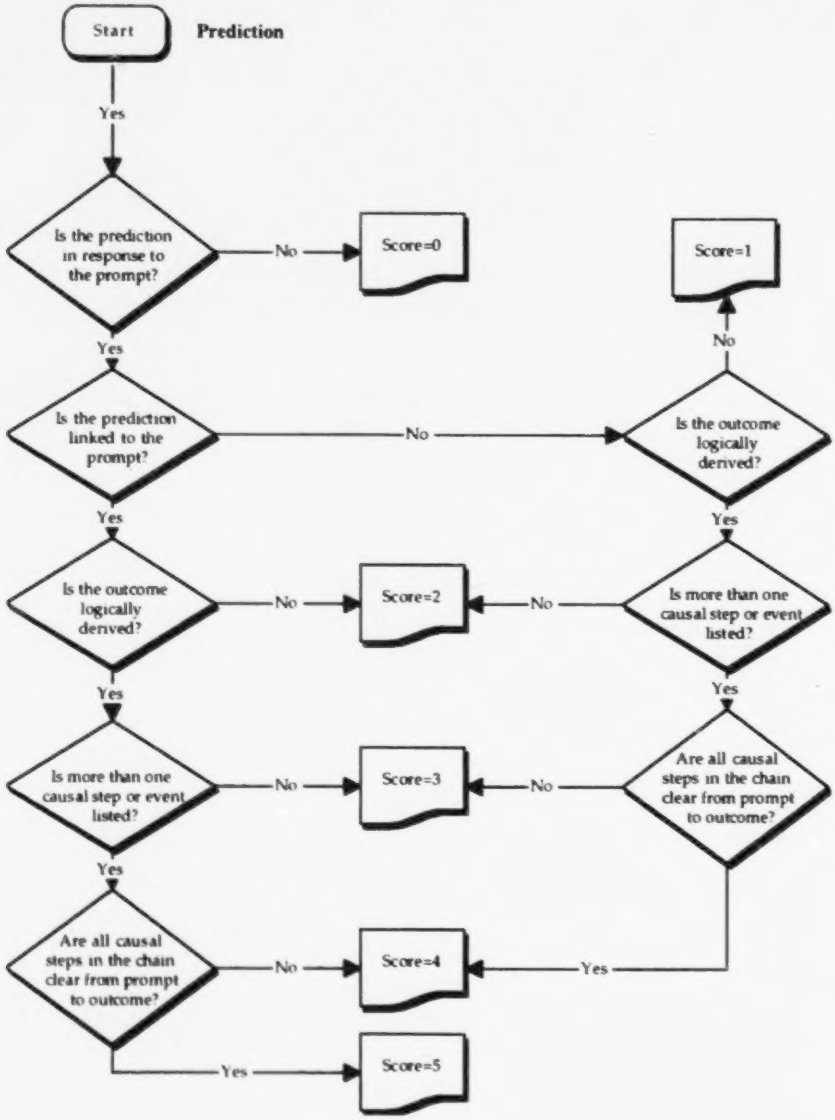
Start
Prediction
Yes
Is the prediction in response to the prompt?
No
Score=0
Yes
Is the prediction linked to the prompt?
No
Is the outcome logically derived?
No
Score=1
Yes
Is the outcome logically derived?
No
Score=2
Is more than one causal step or event listed?
No
Yes
Is more than one causal step or event listed?
No
Score=3
Are all causal steps in the chain clear from prompt to outcome?
No
Yes
Are all causal steps in the chain clear from prompt to outcome?
No
Score=4
Yes
Yes
Score=5

Figure 7. Prediction flowchart.

tion scoring, other answers of this nature would be "I don't know," or answers that are left blank. These answers would again be assigned scores of 0.

Relationship to the Prompt

The student's answer must be examined for a connection to the prompt. Usually the connection to the prompt is clear and easy for the scorer to see. Nevertheless, sometimes students will offer only a final outcome with few details or events between the prompted situation and that outcome. This may appear as a cryptic answer that seems to have little bearing on the prompt.

For example, if a student is asked to predict the results of heavy pollution in the air over the Antarctic, the student may say only, "Farmers in Nebraska will go out of business." At first glance the answer appears to have little bearing on the prompt. The student may have taken a leap in their thinking from the prompt to an outcome without attention to the bridging details. The student may have thought the pollution would cause global warming and flooding of low lands. Weather changes could cause crop failures. The central US could flood. The student should have described the chain in more detail. There are multiple steps of logical development missing from the answer so it appears not to be related to the prompt, however, in an obscure manner it does relate.

Link

As was the case for explanation essays, the link is a demonstration of the student's understanding of the prompt itself. It is usually given at the beginning of an answer as an introduction to the students' thoughts, however, students may give a delayed link that can occur in the middle or even at the end of their answer. For example, students may give the link, "I predict that...," at the beginning of their response; "and then I think the next thing to happen would be...," in the middle of their response; or "So that is what would happen if...," as an end link. The link is a specific and topical reaction to the prompt that focuses and frames the students answer and relates it to the prompt. It should be explicit in nature. As in explanation scoring, a reiteration of a portion of the prompt is considered to at least be linked for scoring purposes.

Logical Outcome

For this step in the process, the question that must be asked is whether the outcome the student presents can realistically happen as a result of the prompted situation. For example, in response to a prompt in which students are asked to predict what would happen if NASA received more funding, a predicted result stating that Captain Kirk would travel to Vulcan to save Spock may be linked, but highly illogical. More logical results of increased funding for NASA would be industry in space, the building of a lunar base, a manned mission to Mars, the capture and mining of asteroids, or creation of O'Neill colonies.

The Number of Steps

As you may remember from the section about explanation essays, events are the concepts, key words, attributes, examples, logical steps, or ideas that have been listed on the content planning worksheet (refer to Figure 2) as being part of the class curriculum. They are the individual steps, points of argument, or ideas a student mentions in the process of answering a prompt. The events are offered as evidence for a position. This evidence becomes the scaffold of the student's prediction. Occasionally students may offer correct ideas or concepts that were not listed on the worksheet. These ideas should be included as correct events. Incorrect concepts, attributes, examples, and ideas should not be scored as events although they should be monitored, for such incorrect notions may indicate mislearning.

The count of steps or events is a simple two-level count of the number of related events or steps in a causal chain that the student has listed in the prediction. This count includes the outcome and any related steps or events listed in the response, but it does not include the prompted situation. The question to ask when scoring is whether there is a single step (the prediction only) or multiple steps listed.

Sequencing

As discussed in the section on explanation scoring, sequencing is the listing of events by the student in a careful, step-by-step manner so all events, information, and their relationship to the prompt and outcome are clearly related to the reader. Sequencing may be viewed as the linking of one event to another in a careful chain of steps that is coherent to the reader.

In the context of prediction essays, sequence refers to the events or reasons the student presents as steps or evidence. The steps create a causal chain from the prompt to the final outcome. They are the steps in development a student who leaps (see the previous section, Relationship to the Prompt) has left out. The student generated elements may be in (a) a series format of different events that are given in a chronological sequence or they may be in (b) a parallel format whereby the student builds a case for a single step by presenting several simultaneously occurring events. For scoring purposes, the sequence is viewed as a logical progression from one event to the next or the relating of multiple events to the outcome.

As examples of these formats, consider the NASA funding prompt once again. A series format answer would be laid out in chronological order: "NASA would work on the space plane, bring people into orbit to work, and build a space station. They would then do research on mass drivers, send a crew after an asteroid, set up mass drivers on the asteroid, and then propel it back to Earth orbit." An answer using a parallel format answer would address several issues for each step of the answer but the chronological sequence would be less overt: "NASA would develop the space plane, mass drivers, and a space colony while people went into space to set up colonies and get an asteroid to bring back to Earth for processing."

Summary of Prediction Scoring

When scoring prediction answers, the presence of a prediction, its relationship to the prompt, its causal linkages, logical derivation, and the number of causal steps or events listed and their sequencing are considered. As with explanation and evaluation questions, it is important to list concepts, key vocabulary, critical features, and facts on the content planning worksheet before scoring so focus can be maintained while scoring. When multiple scorers are involved in the task, several decisions must be made prior to scoring, such as what to do with deviations from the content planning worksheet or redundant events. Such a priori decisions will maintain inter-rater reliability and make scoring easier.

In the following example, we present a student's answer that was considered to be a high-end response. This problem required students to make a difficult prediction. The social studies prompt read, "What would have happened to *Northern* industry if slavery had been abolished in 1850 and no more cotton was produced in the *South*?" (emphasis added). The wording of this prompt was extremely tricky for some students. With a cursory examination of the prompt, the natural assumption a student would make would be that they must discuss the impact of abolition on Southern industry. In fact, some students responding did interpret the prompt in this manner. This prompt gives the typical question a twist so students must explore the interconnectedness of industries in the North and South during the mid-nineteenth century. This created a prompt that required students to take their answers a step farther than a prompt asking the typical question; "What would happen to the South?"

The students were assessed for their use of the concepts discussed in class. Because of the nature of the prompt students were able to go beyond the scope of the typical questions and address both sides of Civil War industry. Some of the events chosen by students are listed in Figure 8.

Following the student's response to this prompt is an analysis of how that answer was scored using the flowcharted system. The primary focus when scoring was to accurately assess how the students presented their predictions utilizing the content of the class. We examined the student's prediction based upon the presentation of that prediction and the causal steps or events that were listed to go from the prompted circumstances to their final outcomes.

Student Sample: Larry's Answer

There would not be any cotton clothes for people to wear and get warmer, because if they didn't have slaves go and pick the cotton there would be no reason to have a cotton gin.

RESPONSES ON THE SOCIAL STUDIES
PROMPT ABOUT THE CIVIL WAR

Events listed among the answers offered by the students were:

- Purchase cotton from another country
- Raise prices of clothing
- Limited clothing
- Ruin northern textile industry
- Effects on workers
- Factory closures
- Economics

*Also acceptable were other analogous statements such as, "People in the North would end up losing their jobs."

Figure 8. Facts used in scoring the Civil War prompt.

Student Sample: Analysis of Larry's Answer

Larry took a great deal for granted that a scorer must interpolate. The chain, when presented clearly, would read, "If there were no slaves, cotton wouldn't get picked, there would be no reason for having cotton gins, and people would have no cotton clothes." This answer addresses Northern industry by the indirect mention of the cotton gin. There is no clear link between the two. No mention is made of getting clothing or cloth or cotton from other sources. Because of this, the link between the prompt and the answer is weak. However, the outcome is logically derived, and there are multiple steps presented. Therefore, the score - not clearly linked, logically derived, multiple steps, linked between the intermediate causal steps (although awkwardly) — is 4. Had Larry more clearly linked the answer to the prompt and made more overt the connection between his answer and Northern industries, the essay would have received a 5.

The content of the course is reflected in Larry's use of key concepts and specialized vocabulary. However, there are problems with his answer. It is not clearly linked to the prompt and the prediction seems sketchy. Certainly Larry understands the information that was presented although his fluency with the material may not be fully developed to the point of absolute mastery. The lack of solid linkage between the prompt and his prediction may also be indicative of Larry's lack of experience with prediction questions or with writing essay answers. In any case, some measure of follow-up with Larry is indicated.

Conclusion

The scoring systems presented herein are reflective of student performance on tasks that are grounded in the intellectual operations evaluation, explanation, and prediction. This grounding in "deeper" constructs allows a psychometrically rigorous examination of student knowledge and fluency. Using these intellectual operations as prompting frameworks, the students are assessed on their ability to use the content materials they have studied. Students must variously use their content knowledge to: (a) evaluate several prompted choices by establishing content-based criteria for making judgments, (b) explain a situation by describing antecedent conditions that were necessary to bring about a prompted situation, or (c) predict a likely outcome of a prompted set of circumstances.

Each of these operations demand extensive use of content specific knowledge in various ways that are accurately quantifiable.

In our past experience with the presented scoring systems we have continually measured inter-rater reliabilities of .85 to .90 for exact agreement on scores, and reliabilities of .90 to 1.00 when scores are compared within one point plus or minus. The inter-rater reliability of these measures is quite high and extremely consistent for performance assessments of this kind. This lends considerable credibility to the notion that higher technical adequacy on performance measures may be achieved through establishing the performance tasks in "deeper" constructs such as the learning operations.

Additionally, these flowcharted systems may easily be adapted to alternate forms to allow time-series measurements and broadly defined domains. This creates a well-grounded though flexible scoring system that may be used in a wide range of activities. Teachers using the scoring system have reported that it is easy to use, rapidly employed, adaptable, and rigorous: causing them to focus on specific operations and content rather than upon poor grammar and penmanship. It has also been suggested that the flowcharts themselves may be useful for training students to write more effectively. The scoring system is quite adaptable to course content making it, therefore, instructionally relevant by integrating content knowledge and writing skills while providing a more reliable measure of student understanding. In turn, perhaps we are more able to see into the learning and processing of the students we serve.

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The Oregon Conference 1995
Fact Sheet

Sponsor: The University of Oregon College of Education sponsors the Oregon Conference 1995.

What: The Oregon Conference is an annual event which focuses on issues in and around education. This year's theme is Educational Challenges and Community Solutions. Key topics include: Violence in the Schools, Educational Practices and Policy, Behavior Management, and Social Skills Instruction.

When: Regular Seminar Sessions–February 2-3
Extended Workshops–February 3-4 (separate registration)

Thursday (18 presentations)
Registration: 8:00am-8:30am
Luncheon Speaker/Opening Comments: 12:00n-12:30pm
Lunch: 12:30pm-1:30pm
Violence Panel: 3:30pm-5:00pm
Wine & Cheese Social: 5:00pm-6:30pm
Friday (52 presentations)
Registration: 8:00am-8:30am
Keynote Address: 9:00am-10:00am
Lunch: 12:00-1:30
Wine & Cheese Social: 5:00pm-6:30pm

Where: Eugene Hilton Hotel
66 E. 6th
Eugene, Oregon
(503) 342-2000

Keynote Speaker: Dr. Shirley Thornton, Deputy Superintendent of the California Department of Education.

For additional information, contact Abe Deffenbaugh, 237 Education, University of Oregon, Eugene, OR 97403-5262, (503) 346-5682, e-mail: Abe_Deffenbaugh@ccmail.uoregon.edu

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